CURRICULUM VITAE

William B Allshouse, PhD, BSPH Instructor

WORK ADDRESS

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Education

2002	University of North Carolina at Chapel Hill, School of Public Health, BSPH,
	Biostatistics
2004	North Carolina State University, College of Physical and Mathematical
	Sciences, MR, Statistics
2014	University of North Carolina at Chapel Hill, Gillings School of Global Public
	Health, PhD, Environmental Sciences and Engineering

Academic Appointments and Positions

2014-2018 Professional Research Assistant, Department of Environmental and Occupational Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

2018- Instructor, Department of Environmental and Occupational Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Other Professional Positions

2001-2002	Undergraduate Research Assistant, Survey Research Unit, Department of
	Biostatistics, School of Public Health, University of North Carolina at Chapel Hill
2002-2004	Teaching Assistant, Department of Statistics, College of Physical and
	Mathematical Sciences, North Carolina State University
2004-2005	Superfund Trainee, Department of Environmental Sciences and Engineering,
	School of Public Health, University of North Carolina at Chapel Hill
2005-2014	Research Assistant, Department of Environmental Sciences and Engineering,
	Gillings School of Global Public Health, University of North Carolina at Chapel
	Hill

Honors and Awards

2004	Member of Mu Sigma Rho, Statistical Honor Society	
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2006 Outstanding Research, University of North Carolina School of Public Health

Professional Affiliations

2002-2008	American Statistical Association
2006-	International Society of Exposure Science (formerly International Society of
	Exposure Analysis)
2007-	American Public Health Association
2014-	GIS Colorado Health Users Group
2018-	Colorado Public Health Association

2018- Colorado Environmental Health Association

Review, Referee, and Editorial Activities

2005-	Ad hoc reviewer for Epidemiology
2006-	Ad hoc reviewer for the Journal of Exposure Science and Environmental
	Epidemiology
2010-	Ad hoc reviewer for Stochastic Environmental Research and Risk Assessment
2017-	Ad hoc reviewer for the Journal of Empirical Research on Human Research Ethics
2019-	Ad hoc reviewer for the International Journal of Geographical Information Science
2019-	Ad hoc reviewer for Environmental Science & Technology
2020-	Ad hoc reviewer for International Journal of Geo-Information
2022-	Ad hoc reviewer for Journal of Pediatrics

Teaching Record

2002-2003	Teaching Assistant, ST515: Statistics for Engineering, Department of Statistics, College of Physical and Mathematical Sciences, North Carolina State
2003-2004	Teaching Assistant/Lab Instructor, ST511: Experimental Statistics for the Biological Sciences I, Department of Statistics, College of Physical and Mathematical Sciences, North Carolina, State University
2004-2007	Teaching Assistant/Lab Instructor, ENVR468: Advanced Functions of Temporal GIS, Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina at Chapel Hill
2004-2007	Teaching Assistant/Lab Instructor, ENVR765: Model-based Exposure Mapping and Risk Assessment, Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina at Chapel Hill
2016-	Lecturer, EHOH6614: Occupational and Environmental Health, Department of Environmental and Occupational Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus
2016-	Instructor, EHOH6621: GIS for Public Health Research/Practice, Department of Environmental and Occupational Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus
2018-	Instructor, EHOH6623: Geographical Perspectives on Global Health, Department of Environmental and Occupational Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus
2019-	Instructor, EHOH6840: Independent Study in Environmental & Occupational Health, Department of Environmental and Occupational Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus
2019-	Guest Lecturer, EPID7605: Research Methods with Secondary Datasets, Department of Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus
2022-	Instructor, PUBH6691: MPH Capstone Integration, Colorado School of Public Health, University of Colorado Anschutz Medical Campus
2022-	Instructor, EHOH6644: Advanced GIS for Public Health Research/Practice, Department of Environmental and Occupational Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Students

Kathy Pang, MPH. Capstone: Elementary School Absenteeism and Ground-
Level Ozone in Colorado (Preceptor)
Amber Vaughn, DrPH. Dissertation: Residential Radon: Examining Oil and Gas
Operations as a Source of Exposure, Characterizing Coloradoans' Radon
Knowledge and Preventive Action, and Practical Implications of Homebuyer
Awareness Radon Policy (Committee Member)
Elise Grover, DrPH. Dissertation: Understanding Parasitic Disease
Transmission in the Context of Weather and Environmental Factors
(Committee Member)

Research Record

Active Support

Exposures from Oil and Gas Development and Childhood Leukemia Risk (PI: McKenzie). American Cancer Society Research Scholar Grant. Our objective for this proposal is to address limitations of previous studies by applying our new spatiotemporal industrial activity model and evaluating population mixing in a large, population-based case-control study of childhood ALL among 1,950 children (325 cases, 1625 controls) aged 2-9 years between 2002 and 2016 and born in Colorado. Funding Period: 07/01/2021-06/30/2025.

Human Health Effects of Drinking Water Exposures to Per- and Polyfluoroalkyl Substances (PFAS): A Multi-site Cross-sectional Study (PI: Adgate). CDC U01TS000300. This research is significant because very little is known about the health effects of consuming water contaminated with perfluoroalkyl substances (PFAS) originating from aqueous film-forming foams used in firefighting and training activities. By enrolling adults and children from a highly exposed population, this research will provide critical information on the relationship between this unique PFAS exposure profile and the occurrence of several chronic diseases and markers of disease risk. Funding Period: 09/30/2019-09/29/2024.

Collaborative Research: Oil and Gas Siting, Housing Choices, and Environmental Justice in Colorado (PI: Dickinson). NSF DRMS. The goal of this study is to investigate whether the evolving O&G energy landscape is generating environmental justice problems and the impact of policies and processes. Funding Period: 07/01/2020-06/30/2023

Assessing the Effects of Unconventional Oil and Gas Development on Community Water Sources (PI: Ryan) HEI Energy. To properly assess the public health risks of contamination of ground and surface waters caused by unconventional oil and gas development, we need to better understand the complete exposure pathways by which contaminants can reach community residents. Better knowledge of these pathways – from the source to the receptor – will provide regulators with the information they need to effectively target oil and gas facilities most likely to create risks to water quality. Funding Period: 01/01/2022-12/31/2022.

High Value Care in Cardiovascular Medicine (PI: Khazanie) The goal of this study is to define the extent of regional variation in heart replacement therapy (HRT) across the US, the study team will use Medicare claims and the Dartmouth Atlas to determine age- and sex-adjusted rates of HRT across 306 HRRs in the U.S. Funding Period: 01/01/2022-12/31/2022.

Completed Support

Health symptoms of residents in the City and County of Broomfield during oil and gas development (PI: McKenzie). Contract with the City and County of Broomfield. The major goal of this study is to survey residents in Broomfield during the development of a large oil and gas well pad and analyze whether reported health symptoms are related to the distance from this pad. Funding Period: 05/01/2022 - 04/30/2022.

Development of hydraulically fractured oil and natural gas sites and incidence of atrial fibrillation claims in Colorado's All Payers Claims Database (PI: McKenzie). NIH 1R21HL145337-01. The major goal of this study is to investigate whether individuals diagnosed with atrial fibrillation have more contacts with the health system if they are living near an oil and gas well pad under development. Funding Period: 03/01/2019 – 02/28/2022.

The Early Life Exposome and Childhood Health – The Colorado Healthy Start 3 Cohort Study (PI: Dabelea). NIH 1UG3OD023248-01. This prospective study investigates the role of environmental exposure of childhood health outcomes. Funding Period: 09/01/2016-08/31/2023.

Air Pollution and Bladder Cancer Immunotherapy (PI: Brown). ALSAM Foundation. The major goal of this study is to investigate whether exposure to air pollution impacts the success rate of immunotherapy in bladder cancer patients. Funding period: 01/01/2019-12/31/2021.

Routes to Sustainability for Natural Gas Development and Water and Air Resources in the Rocky Mountain Region (PI: Ryan). NSF CBET-1240584. The major goal of this program is to address the conflict between natural gas extraction and water and air resources with the development of a social-ecological system framework. Funding Period: 10/01/2012-09/30/2019.

Maternal Exposure to Natural Gas Development Emissions and Congenital Heart Defects: A Case-Control Study (PI: McKenzie). American Heart Association 14SDG19860013. The major goal of this research is to investigate associations between different natural gas development phases and congenital heart disease. Funding Period: 07/01/2014-06/30/2018.

Quality of Life and Stress Effects in Communities with Oil and Gas Development (PI: Adgate). NIEHS 1R21ES025140-01. This study will test the hypothesis that populations living near oil and gas development experience decreased quality of life and measurable adverse changes in subclinical biomarkers of stress, cardiovascular health, and inflammation compared to populations without oil and gas development. Funding Period: 09/10/2014-08/31/2017.

Childhood Cancer and Exposure to Oil and Gas Operations: A Preliminary Study (PI: McKenzie). Grohne Chair in Cancer Prevention. This preliminary study aims are to investigate associations between childhood leukemia and non-Hodgkins lymphoma in a population experiencing an increasingly important environmental exposure - pollutants and stressors associated with Colorado's rapidly expanding oil and gas operations. Funding Period: 08/01/2014-07/31/2015.

Pending Support

Noise and air pollution influences on sleep and cardiovascular health in aging populations: industrialization of neighborhoods (PI: McKenzie). NIA R01. The goals of this study are to estimate the spatial extent and dynamic range of air pollution and noise from oil and gas well sites and whether this influences sleep and cardiovascular health, particularly in populations of older adults.

Linking Three Colorado Databases to Investigate the Impact of Oil and Gas Exposure on Pregnancy Outcomes (PI: McKenzie). NIH NICHD R01. The major goal of this study is to harness information from Colorado's Birth Registry, All Payer Claims Data (APCD), and Oil and Gas Information System (COGIS) to provide a powerful new dataset that will advance investigations into the risks and costs pregnancy complications resulting from exposure to environmental factors.

Bibliography

Peer-reviewed Journal Articles

1. Allshouse WB, Pleil JD, Rappaport SM, Serre ML (2009) Mass fraction spatiotemporal geostatistics and its application to map atmospheric polycyclic aromatic

hydrocarbons after 9/11. Stochastic Environmental Research and Risk Assessment 23(8):1213-1223, DOI: <u>https://doi.org/10.1007/s00477-009-0326-y</u>.

- Allshouse WB, Fitch MK, Hampton KH, Gesink DC, Doherty IA, Leone PA, Serre ML, Miller WC (2010) Geomasking sensitive health data and privacy protection: an evaluation using an E911 database. Geocarto International 25(6):443-452, DOI: https://doi.org/10.1080/10106049.2010.496496.
- Hampton KH, Fitch MK, Allshouse WB, Doherty IA, Gesink DC, Leone PA, Serre ML, Miller WC (2010) Mapping health data: improved privacy protection with donut method geomasking. American Journal of Epidemiology 172(9):1062-1069, DOI: https://doi.org/10.1093/aje/kwq248.
- McKenzie LM, Allshouse WB, Burke T, Blair B, Adgate JL (2016) Population size, growth, and environmental justice near oil and gas wells in Colorado. Environmental Science & Technology 50(21): 11471-11480, DOI: https://doi.org/10.1021/acs.est.6b04391.
- McKenzie LM, Allshouse WB, Byers TE, Bedrick EJ, Serdar B, Adgate JL (2017) Childhood hematologic cancer and residential proximity to oil and gas development. PLoS ONE 12(2): e0170423, DOI: <u>https://doi.org/10.1371/journal.pone.0170423</u>.
- Blair BD, McKenzie LM, Allshouse WB, Adgate JL (2017) Is reporting "significant damage" transparent? Assessing fire and explosion risk at oil and gas operations in the United States. Energy Research & Social Science 29: 36-43, DOI: <u>https://doi.org/10.1016/j.erss.2017.04.014</u>.
- Allshouse WB, Adgate JL, Blair BD, McKenzie LM (2017) Spatiotemporal industrial activity model for estimating the intensity of oil and gas operations in Colorado. Environmental Science & Technology 51(17):10243-10250, DOI: <u>https://doi.org/10.1021/acs.est.7b02084</u>.
- McKenzie LM, Blair BD, Hughes J, Allshouse WB, Blake NJ, Helmig D, Milmoe P, Halliday H, Blake DR, and Adgate JL (2018) Ambient non-methane hydrocarbon levels along Colorado's Northern Front Range: acute and chronic health risks. Environmental Science & Technology 52(8): 4514-4525, DOI: <u>https://doi.org/10.1021/acs.est.7b05983</u>.
- Blair BD, Hughes J, Allshouse WB, McKenzie LM, and Adgate JL (2018) Truck and multivehicle truck accidents with injuries near Colorado oil and gas Operations. International Journal of Environmental Research and Public Health 15(9), 1861, DOI: <u>https://doi.org/10.3390/ijerph15091861</u>.
- Moore B, Starling A, Magzamen S, Harrod C, Allshouse WB, Adgate JL, Ringham B, Glueck D, Dabelea D (2018) Fetal exposure to maternal active and secondhand smoking with offspring early-life growth in the Healthy Start study. International Journal of Obesity 43: 652-662, DOI: <u>https://doi.org/10.1038/s41366-018-0238-3</u>.
- McKenzie LM, Crooks J, Peel JL, Blair BD, Brindley S, Allshouse WB, Malin S, Adgate JL (2018) Relationships between indicators of cardiovascular disease and intensity of oil and natural gas activity in northeastern Colorado. Environmental Research 170: 56-64, DOI: <u>https://doi.org/10.1016/j.envres.2018.12.004</u>.
- Martenies SE, Allshouse WB, Starling AP, Ringham BM, Glueck DH, Adgate JL, Dabelea D, Magzamen S (2019) Combined environmental and social exposures during pregnancy and associations with neonatal size and body composition: the Healthy Start study. Environmental Epidemiology 3(2): e043, DOI: https://doi.org/10.1097/EE9.00000000000043.
- Allshouse WB, McKenzie LM, Barton K, Brindley S, Adgate JL (2019) Community noise and air pollution exposure during the development of a multi-well oil and gas pad. Environmental Science & Technology 53(12): 7126-7135, DOI: <u>https://doi.org/10.1021/acs.est.9b00052</u>.

- McKenzie L, Allshouse W, Daniels S (2019) Congenital heart defects and intensity of oil and gas well site activities in early pregnancy. Environment International 132(2019): 104949, DOI: <u>https://doi.org/10.1016/j.envint.2019.104949</u>.
- Moore B, Shapiro AL, Wilkening G, Magzamen S, Starling AP, Allshouse WB, Adgate JL, Dabelea D (2019) Prenatal exposure to tobacco and offspring neurocognitive development in the Healthy Start study. Journal of Pediatrics, DOI: https://doi.org/10.1016/j.jpeds.2019.10.056.
- Sempio C, Lindley E, Klawitter J, Christians U, Bowler R, Adgate JL, Allshouse W, Awdziejczyk L, Fischer SN, Bainbridge J, Vandyke M, Netsanet R, Crume T, Kinney G (2019) Surface detection of THC attributable to vaporizer use in the indoor environment. Scientific Reports 9: 18587 (2019), DOI: <u>https://doi.org/10.1038/s41598-019-55151-5</u>.
- Starling A, Moore B, Thomas D, Peel J, Zhang W, Adgate J, Magzamen S, Martenies S, Allshouse W, Dabelea D (2020) Prenatal exposure to traffic and ambient air pollution and infant weight and adiposity: The Healthy Start Study. Environmental Research 182(2020): 109130, DOI: <u>https://doi.org/10.1016/j.envres.2020.109130</u>.
- Martenies SE, Hoskovec L, Wilson A, Allshouse WB, Adgate JL, Dabelea D, Jathar S, Magzamen S (2021) Assessing the impact of wildfires on the use of black carbon as an indicator of traffic exposures in environmental epidemiology studies. GeoHealth. <u>https://doi.org/10.1029/2020GH000347</u>.
- Martenies S, Keller J, WeMott S, Kuiper G, Ross Z, Allshouse WB, Adgate J, Starling A, Dabelea D, Magzamen S (2021) A spatiotemporal prediction model for black carbon in the Denver metropolitan area, 2009-2020. Environmental Science & Technology. <u>https://doi.org/10.1021/acs.est.0c06451</u>.
- Friedman C, Dabelea D, Thomas DSK, Peel JL, Adgate JL, Magzamen S, Martenies SE, Allshouse WB, Starling AP (2021) Exposure to ambient air pollution during pregnancy and inflammatory biomarkers in maternal and umbilical cord blood: the Healthy Start study. Environmental Research. <u>https://doi.org/10.1016/j.envres.2021.111165</u>.
- Bloemsma L, Dabelea D, Thomas D, Peel J, Adgate J, Allshouse WB, Martenies S, Magzamen S, Starling A (2021) Prenatal exposure to ambient air pollution and traffic and indicators of adiposity in early childhood: The Healthy Start study. International Journal of Obesity. <u>https://doi.org/10.1038/s41366-021-01003-0</u>.
- 22. Friedman C, Dabelea D, Bloemsma LD, Thomas DSK, Peel JL, Adgate JL, Magzamen S, Martenies SE, **Allshouse WB**, Starling AP (2022) Ambient air pollution during pregnancy and cardiometabolic biomarkers in cord blood: The Healthy Start study. Environmental Epidemiology. <u>https://doi.org/10.1097/ee9.000000000000203</u>
- Vaughn A, Lohmiller K, James KA, Van Dyke M, Whitesell N, Allshouse WB, Kelley C (2022) Characterization of Colorado residents and radon reduction behaviors through latent class analysis and path models. Journal of Environmental Radioactivity. <u>https://doi.org/10.1016/j.jenvrad.2022.106910</u>
- 24. Starling AP, Liu C, Kechris K, Yang IV, Friedman C, Thomas DSK, Peel JL, Adgate JL, Magzamen S, Martenies SE, Allshouse WB, Dabelea D (2022) Ambient air pollution during pregnancy and DNA methylation in umbilical cord blood, with potential mediation of associations with infant adiposity: The Healthy Start study. Environmental Research. <u>https://doi.org/10.1016/j.envres.2022.113881</u>
- 25. Martenies SE, Hoskovec L, Wilson A, Moore BF, Starling AP, **Allshouse WB**, Adgate JL, Dabelea D, Magzamen S (Submitted) Using non-parametric Bayes shrinkage to assess relationships between multiple environmental and social stressors and neonatal size and body composition in the Healthy Start cohort. Environmental Health.
- 26. Vaughn A, James KA, Van Dyke M, **Allshouse WB**, Kelley C, Lohmiller K (Submitted) Oil and gas well operations and indoor radon levels in Colorado. Environmental Science and Policy.

Competitive Scientific Abstracts

- 1. Allshouse WB, Serre ML, Pleil JD, Rappaport SM. A space/time particulate matter mass fraction framework for the assessment of outdoor exposure to polycyclic aromatic hydrocarbons after 9/11 in New York City, International Conference on Environmental Epidemiology and Exposure, Paris, September 2006.
- Allshouse WB, Serre ML, Hall DJ, Mills KT, Wing S. Spatiotemporal Bayesian Maximum Entropy modeling of hydrogen sulfide concentrations using data collected at different observation time scales near swine operations, Joint Statistical Meetings, Salt Lake City, UT, July 2007.
- 3. Allshouse WB, Serre ML, Hall DJ, Mills KT, Wing S. Assessment of hydrogen sulfide exposure for a community with a high density of industrial hog operations, Conference of the International Society of Exposure Analysis, Durham, NC, October 2007.
- Fitch MK, Allshouse WB, Serre ML, Hampton KH, Gesink DC, Leone PA, Miller WC. Geomasking algorithms to protect confidentiality of sexually transmitted infections in spatial epidemiology, American Public Health Association Annual Meeting and Exposition, Washington, DC, November 2007.
- 5. **Allshouse WB**, Serre ML, Hall DJ, Mills KT, Wing S. Community based monitoring of ambient hydrogen sulfide levels near swine operations, American Public Health Association Annual Meeting and Exposition, Washington, DC, November 2007.
- 6. Allshouse WB. Space/time modeling of hydrogen sulfide from hog CAFOs in Eastern North Carolina, Environmental Sciences & Engineering Departmental Seminar Series, Chapel Hill, NC, February 2008.
- 7. Allshouse WB, Hampton KH, Leone PA, Miller WC, Serre ML. Methods for space/time mapping of HIV incidence rates in North Carolina, International Conference on Environmental Epidemiology and Exposure, Pasadena, CA, October 2008.
- 8. Fitch MK, **Allshouse WB**, Hampton KH, Gesink DC, Doherty IA, Leone PA, Serre ML, Miller WC. A comparison of estimated versus actual k-anonymity when geomasking sensitive health data, International Conference on Environmental Epidemiology and Exposure, Pasadena, CA, October 2008.
- 9. Allshouse WB, Hall DJ, Mills KT, Wing S, Serre ML. Spatiotemporal exposure assessment of atmospheric hydrogen sulfide produced by industrial hog operations, International Conference on Environmental Epidemiology and Exposure, Pasadena, CA, October 2008.
- 10. Hampton KH, Fitch MK, **Allshouse WB**, Gesink DC, Doherty IA, Leone PA, Serre ML, Miller WC. Associations between arrhythmia episodes and air pollution in elderly patients, International Conference on Environmental Epidemiology and Exposure, Pasadena, CA, October 2008.
- 11. **Allshouse WB**, Fitch MK, Hampton KH, Gesink DC, Doherty IA, Leone PA, Serre ML, Miller WC. An evaluation of privacy protection when geomasking STI data, 18th International Society for STD Research Conference, London, June 2009.
- 12. Allshouse WB, McKenzie LM, Burke T, Adgate JL. An exploratory analysis of BTEX in groundwater samples around oil and gas wells in Colorado, International Society of Exposure Science Conference, Henderson, NV, October 2015.
- Allshouse WB, Adgate JL, Burke T, McKenzie LM. A spatiotemporal industrial activitybased model for characterizing residential exposure to oil and natural gas extraction in Colorado, International Society of Exposure Science Conference, Henderson, NV, October 2015.

- 14. Adgate JL, Taylor L, **Allshouse WB**, McKenzie LM, Burke T, Halliday H. Cumulative risk around oil and gas development sites: estimating air exposures and risks in the Denver Julesburg Basin, International Society of Exposure Science Conference, Henderson, NV, October 2015.
- 15. McKenzie LM, **Allshouse WB**, Burke T, Martinez W, Adgate JL. Populations neighboring oil and gas development in Colorado's Denver Julesburg Basin, International Society of Exposure Science Conference, Henderson, NV, October 2015.
- 16. **Allshouse WB**, McKenzie LM. A spatiotemporal industrial-activity model for investigating the intensity of oil and gas activities, Conference on Geospatial Approaches to Cancer Control and Population Sciences, Bethesda, MD, September 2016.
- 17. **Allshouse WB**, Blair BD, Newman M, Brindley S, McKenzie LM, Adgate JL. Noise levels at a producing oil well pad and potential impacts for the surrounding community, International Society of Exposure Science Conference, Utrecht, The Netherlands, October 2016.
- 18. Adgate JL, McKenzie LM, **Allshouse WB**, Blair B, Brindley S. Study design challenges in estimating exposure and health effects in populations living near oil and natural gas development sites, International Society of Exposure Science Conference, Utrecht, The Netherlands, October 2016.
- 19. Blair B, McKenzie LM, **Allshouse WB**, Adgate JL. A summary of fires, explosions, and release events surrounding oil and gas development site in Colorado, International Society of Exposure Science Conference, Utrecht, The Netherlands, October 2016.
- 20. McKenzie LM, **Allshouse WB**, Byers TE, Bedrick EJ, Serdar B, Adgate JL. Childhood leukemia and residential proximity to oil and gas development, International Society of Exposure Science Conference, Utrecht, The Netherlands, October 2016.
- Adgate JL, McKenzie LM, Blair BD, Allshouse WB, Blake N, Helmig D, Halliday H. Estimating Cumulative Risk from Oil and Gas Operations in the Denver Julesburg Basin. International Society of Exposure Science Conference, Research Triangle Park, NC, October 2017.
- 22. Blair BD, Hughes J, **Allshouse WB**, McKenzie LM, Adgate JL. Increased truck and multivehicle truck accidents with injuries observed near Colorado oil and gas operations. International Society of Exposure Science Conference, Research Triangle Park, NC, October 2017.
- 23. **Allshouse WB**, Adgate JL, Blair BD, McKenzie LM. An industrial activity model approach to differentiating exposure categories for oil and gas epidemiological studies. International Society of Exposure Science Conference, Research Triangle Park, NC, October 2017.
- 24. McKenzie LM, **Allshouse WB**, Adgate JL. Congenital heart defects and intensity of upstream oil and gas activities in early pregnancy. International Society of Exposure Science-International Society for Environmental Epidemiology Joint Conference, Ottawa, Canada, August 2018.
- 25. Martenies SE, **Allshouse W**, Starling A, Ringham BM, Glueck DH, Adgate JL, Dabelea D, Magzamen S. Combined prenatal environmental and social exposures and associations with weight and adiposity at birth in the Denver Healthy Start birth cohort. International Society of Exposure Science-International Society for Environmental Epidemiology Joint Conference, Ottawa, Canada, August 2018.
- 26. Sempio C, Lindley E, Klawitter J, Bowler R, Adgate J, **Allshouse W**, Awdziejczyk L, Vandyke M, Netsanet R, Crume T, Kinney G Detection of THC on surfaces in a room exposed to cannabis vaporizer use. Institute of Cannabis Research Conference, Pueblo, CO, March 2019.

- 27. Martenies SE, WeMott S, Kuiper G, **Allshouse WB**, Starling AP, Adgate JL, Dabelea D, Magzamen S. Wildfire smoke may interfere with the use of black carbon as an indicator of traffic exposure. International Society of Exposure Science-International Society of Indoor Air Quality and Climate Joint Conference, Kaunas, Lithuania, August 2019.
- 28. Martenies SE, WeMott S, Kuiper G, Lorber K, Dawson C, Andresen K, Allshouse WB, Starling AP, Adgate JL, Dabelea D, Magzamen S. Developing a black carbon land use regression model for the Denver, CO metropolitan area. International Society of Exposure Science-International Society of Indoor Air Quality and Climate Joint Conference, Kaunas, Lithuania, August 2019.
- 29. Moore BF, Shapiro AL, Wilkening G, Magzamen S, Starling AP, **Allshouse WB**, Adgate JL, Ringham BM, Glueck DH, Dabelea D. Fetal exposure to tobacco smoke and offspring early-life neurodevelopment in the Healthy Start study. International Society of Exposure Science-International Society of Indoor Air Quality and Climate Joint Conference, Kaunas, Lithuania, August 2019.
- 30. Martenies SE, **Allshouse WB**, WeMotta S, Kuiper G, Starling AP, Adgate JL, Dabelea D, Magzamen S. Using low-cost personal monitors to develop a black carbon land use regression model for Denver, CO. Air & Waste Management Association Annual Conference, San Francisco, CA, June-July 2020.
- 31. Martenies SE, Hoskovec L, Wilson A, Moore B, Starling AP, Allshouse WB, Adgate JL, Dabelea D, Sheryl Magzamen S. A mixtures approach to assessing relationships between environmental and social determinants of health and neonatal size and body composition in the Healthy Start cohort. International Society for Environmental Epidemiology Conference, Washington, DC, August 2020.
- 32. Friedman C, Dabelea D, Thomas DSK, Peel JL, Adgate JL, Magzamen S, Martenies SE, **Allshouse WB**, Starling AP. Exposure to ambient air pollution during pregnancy and inflammatory markers in maternal and umbilical cord blood. International Society for Environmental Epidemiology Conference, Washington, DC, August 2020.
- 33. Starling AP, Zhang W, Yang IV, Thomas DSK, Peel JL, Adgate JL, Magzamen S, Martenies SE, Allshouse WB, Dabelea D. Ambient particulate matter and ozone exposures during pregnancy and DNA methylation in umbilical cord blood. International Society for Environmental Epidemiology Conference, Washington, DC, August 2020.
- 34. Bloemsma LD, Dabelea D, Thomas, DSK, Peel JL, Adgate JL, Allshouse WB, Martenies SE, Magzamen S, Starling AP. Prenatal exposure to ambient air pollution and traffic and indicators of adiposity in early childhood: The Healthy Start study. International Society for Environmental Epidemiology Conference, Washington, DC, August 2020.
- 35. Friedman C, Dabelea D, Bloemsma LD, Thomas DSK, Peel JL, Adgate JL, Magzamen S, Martenies SE, **Allshouse WB**, Starling AP. Ambient air pollution exposure during pregnancy and cardio-metabolic markers in cord blood: The Healthy Start study. International Society for Environmental Epidemiology Conference, New York, NY, August 2021.
- 36. Starling AP, Glueck DH, **Allshouse WB**, Boyle KE, Bloemsma LD, Hamman RF, Adgate JL, Dabelea D. Prenatal exposure to per- and polyfluoroalkyl substances and child adiposity at age 5: a multipollutant analysis. International Society for Environmental Epidemiology Conference, New York, NY, August 2021.