BIOMEDICAL & VETERINARY SCIENCES

GRADUATE PROGRAM

ANNOUNCES

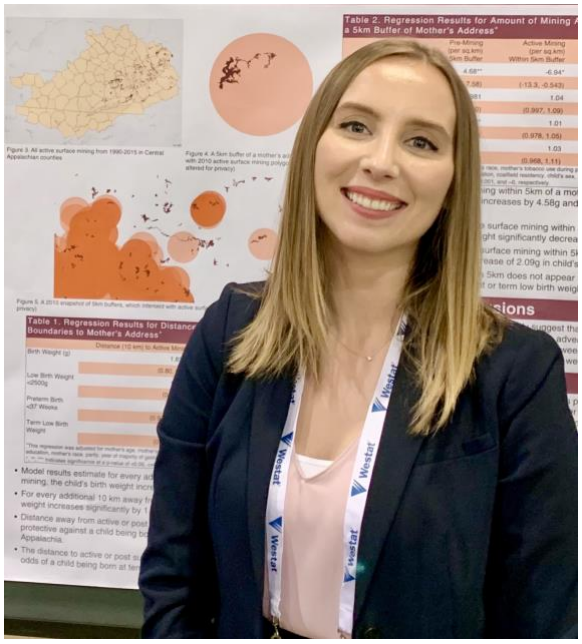
The Master of Science Seminar and Examination of

Lauren Buttling

“Maternal residential proximity to Central Appalachian surface mining and adverse birth outcomes”

Wednesday, May 13th, 2020
10:00 AM
Zoom - https://virginiatech.zoom.us/j/95451535043

Bio



Lauren is a dual MPH/MS student from Potomac Falls, Virginia. She received her undergraduate degree in Environmental Policy and Planning from Virginia Tech in 2018. In undergrad she assisted with pathogen aerosolization and waterborne disease research. During the summer of 2019, she worked at the Fairfax County Department of Health as an Epidemiology Intern responding to outbreaks in the district. Throughout her time in graduate school she has served as an Epidemiology Responder for the Medical Reserve Corps, REVIVE! Naloxone Trainer, and the VT Public Health Association's Academic Chair.

Funded by

National Institute of Environmental Health Sciences

R21ES028396

VMCVM Office of Research and Graduate Studies

Lay Language Abstract

Central Appalachian surface mining produces air, water, and noise pollution, all of which are associated with increased risk of adverse birth outcomes. Previous studies examining associations between surface mining and adverse birth outcomes rely upon relatively coarse county level data. This research compares outcomes from hundreds of thousands of individual birth records and proximity of maternal home address to surface mines for a fine scale, epidemiological study. Surface mining boundaries between 1986-2015 were developed using satellite imagery. These boundaries determined if gestation occurred before, during, or post active surface mining. Births records from VA, WV, KY, and TN were geocoded and assigned the amount of surface mining within a 5km radius of residence. Births were also assigned exposures based on the amount of surface mining within residential ZIP code since geocoding let to a decrease in sample size. Associations between proximity to surface mining during gestation and birth weight, preterm birth (PTB), low birth weight (LBW), and term low birth weight (tLBW) were determined by linear and logistic regression when adjusted for demographic factors. Results demonstrate significantly decreased birth weights were found near active mining operations. Mother's near active surface mining also saw a slight increase in the odds of their birth being PTB, LBW or tLBW. These results suggest there is a subtle relationship between proximity to surface mining and adverse birth outcomes.

Publications

Satterwhite, E., Bell, S. E., Marr, L. C., Thompson, C. K., Prussin, A. J., Buttling, L., … Gohlke, J. M. (2020). Building Interdisciplinary Partnerships for Community-Engaged Environmental Health Research in Appalachian Virginia. International Journal of Environmental Research and Public Health, 17(5), 1695. doi: 10.3390/ijerph17051695

Rhoads, W. J., Bradley, T. N., Mantha, A., **Buttling, L**., Keane, T., Pruden, A., & Edwards, M. A. (2020). Residential water heater cleaning and occurrence of Legionella in Flint, MI. Water Research, 171, 115439. doi: 10.1016/j.watres.2019.115439

Prussin, A. J., Schwake, D. O., Lin, K., Gallagher, D. L**., Buttling, L**., & Marr, L. C. (2018). Survival of the Enveloped Virus Phi6 in Droplets as a Function of Relative Humidity, Absolute Humidity, and Temperature. Applied and Environmental Microbiology, 84(12). doi: 10.1128/aem.00551-18

Presentations

Maternal Residential Proximity to Central Appalachian Surface Mining and Adverse Birth Outcomes- 35th Annual Graduate Student Assembly Research Symposium 2020

Maternal Residential Proximity to Central Appalachian Surface Mining and Adverse Birth Outcomes- BMVS RIP Seminar 2020

Spatiotemportal epidemiology of adverse birth outcomes in relation to Central Appalachian surface mining- American Public Health Association Annual Meeting 2019

Awards and Academic Achievements

2nd Place-35th Annual Graduate Student Assembly Research Symposium, Poster Presentations, 2020

Outstanding Poster Presentation, VT Public Health PHPE Poster Session, 2019

Examination Graduate Committee

Major Advisor/Chair:

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