

Paul Zivich

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Education

- 2016–2021 **Ph.D.**, *Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill*, Chapel Hill, NC
- 2014–2016 **M.P.H.**, *Department of Epidemiology, College of Public Health, The Ohio State University*, Columbus, OH
- 2011–2015 **B.S.P.H.**, *College of Public Health, The Ohio State University*, Columbus, OH

Experience

- 2021 **Postdoctoral Researcher**, *Causal Inference Research Laboratory*, Chapel Hill, NC
- 2019 **Graduate Teaching Assistant**, *Epidemiology 722: Survival Analysis*, Chapel Hill, NC

Grants

- 2021–2022 **T32-AI007001 NIH/NIAID (Adimora AA, PI)**, *Training in Sexually Transmitted Diseases and HIV*, Postdoctoral Trainee
Provide training to doctoral students and postdoctoral fellows, including physicians, to create a cadre of young scientists with the skills in basic science, clinical medicine, epidemiology, and behavioral science to reduce the impact of sexually transmitted diseases, including HIV infection.
- 2018–2021 **T32-HD091058 NIH/NICHD (Aiello AE & Hummer RA, PIs)**, *From Biological to Social Processes: Interdisciplinary Training in Life Course Research*, Predoctoral Trainee
Provide integrated social and biological/health sciences research training to junior scientists to better identify, understand, and produce new knowledge on the social and biological pathways to health across the life course, thereby identifying novel points of intervention to improve health and reduce health disparities.

Peer-Reviewed Publications

1. **Zivich PN**, Klose M, Cole SR, Edwards JK, & Shook-Sa BE. (2022). "Delicatessen: M-Estimation in Python". *arXiv:2203.11300* [stat.ME]
2. **Zivich PN**, Hudgens MG, Brookhart MA, Moody J, Weber DJ, Aiello AE. "Targeted maximum likelihood estimation of causal effects with interference: a simulation study". *Under Review* 2022.
3. **Zivich PN**, Shook-Sa BE, Edwards JK, Westreich D, Cole SR. "On the use of covariate supersets for identification conditions". *Epidemiology* In-Press 2022.
4. Cole SR, Edwards JK, Breskin A, Rosin S, **Zivich PN**, Shook-Sa BE, Hudgens MG. "Illustration of Two Simple Fusion Designs and Estimators". *American Journal of Epidemiology* In-Press 2022.
5. Martinez RM, Andrabi N, Goodwin AN, Wilbur RE, Smith NR, **Zivich PN**. "Conceptualization, operationalization, and utilization of race and ethnicity in major epidemiology journals 1995-2018: a systematic review". *American Journal of Epidemiology* In-press 2022
6. Smith MJ, Maringe C, Rachet B, Mansournia MA, **Zivich PN**, Cole SR, Luque-Fernandez MA. "Tutorial: Introduction to computational causal inference using reproducible Stata, R and Python code". *Statistics in Medicine*. 2022; 41(2):407-432
7. **Zivich PN**, Cole SR, Breskin A. "Twister plots for time-to-event studies". *American Journal of*

Epidemiology. 2021; 190(12):2730–2731

8. **Zivich PN**, Volfovsky A, Moody J, Aiello AE. "Assortativity and Bias in Epidemiologic Studies of Contagious Outcomes: A Simulated Example in the Context of Vaccination". *American Journal of Epidemiology*. 2021; 190(11):2442-2452
9. Ciccone EJ, **Zivich PN**, Lodge EK, Zhu D, Law E, Taylor JL, Chung C, Xu J, Volfovsky A, Beatty C, Abernathy H, King E, Garrett HE, Markmann AJ, Rebuli ME, Sellers S, Weber DJ, Reyes R, Alvian N, Juliano JJ, Boyce RM, Aiello AE. "SARS-CoV-2 Infection in Healthcare Personnel and Their Household Contacts at a Tertiary Academic Medical Center: Protocol for a Longitudinal Cohort Study". *JMIR Research Protocols*. 2021; 10(4): e25410
10. **Zivich PN**, Breskin A. "Machine learning for causal inference: on the use of cross-fit estimators". *Epidemiology* 2021; 32(3):393-401
11. Hagaman A, LeMasters K, **Zivich PN**, Sikander S, Maselko J. "Longitudinal effects of perinatal social support on maternal depression: a marginal structural modeling approach". *J Epidemiol Community Health*. 2021; 75:936-943
12. LeMasters K, Bates LM, Chung EO, Gallis JA, Hagaman A, Scherer E, Sikander S, Staley BS, Zalla LC, **Zivich PN**, Maselko J. "Adverse Childhood Experiences and Depression Among Women in Rural Pakistan". *BMC Public Health*. 2021; 21(1):1-11
13. **Zivich PN**, Huang W, Eisenberg MC, Walsh A, Aiello AE. "Measuring office workplace interactions and hand hygiene behaviors through electronic sensors: a feasibility study". *PLoS One*. 2021; 16(1):e0243358
14. Agler RA, **Zivich PN**, Kawende B, Behets F, Yotebieng M. "Postpartum depressive symptoms following implementation of the 10 steps to successful breastfeeding program in Kinshasa, Democratic Republic of Congo: a cohort study". *PLoS Med*. 2021; 18(1):e1003465
15. **Zivich PN**, Eisenberg MC, Monto A, Uzicanin A, Baric RS, Sheahan T, Rainey J, Gao H, Aiello AE. "Transmission of viral pathogens in social network of university students: the eX-FLU study". *Epidemiology and Infection*. 2020; 148
16. Smith NR, **Zivich PN**, Frerichs L, Moody J, Aiello AE. "A guide for choosing community detection algorithms in social network studies: the question-alignment approach". *American Journal of Preventative Medicine* 2021 Oct; 59(4):597-605
17. **Zivich PN**, Kiketa L, Kawende B, Lapika B, Behets F, Yotebieng M. "Effect of Family Planning Counseling After Delivery on Contraceptive Use at 24 Weeks Postpartum in Kinshasa, Democratic Republic of Congo". *Maternal and Child Health*. 2019 Apr; 23(4):530-537
18. **Zivich PN**, Grabenstein JD, Becker-Dreps SI, Weber DJ. "Streptococcus pneumoniae Outbreaks and Implications for Transmission and Control: A Systematic Review". *Pneumonia* 2018 Nov; 10(11)
19. **Zivich PN**, Yotebieng M, Lapika B, Behets F. "Implementation of Ten Steps to successful Breastfeeding and incidence of diarrhea, respiratory tract infection, and hospitalization among 0-6 month infants in Kinshasa, Democratic Republic of Congo: A randomized controlled trial". *Maternal and Child Health*. 2018 April; 22(5):762-771
20. **Zivich PN**, Gancz A, Aiello AE. "Effect of Hand Hygiene in the Office Workplace on Infectious Diseases: A Systematic Review" *American Journal of Infection Control*. 2018 April; 46(4):448-455
21. **Zivich PN**, Tatham L, Lung K, Tien J, Bollinger CE, Bower JK. "The association of influenza vaccine status and timing with outcomes among patients in Columbus, Ohio (2012-2015)". *Epidemiology and Infection*. 2017 Nov;145(15):3284-3293
22. **Zivich PN**, Kiketa L, Kawende B, Lapika B, Yotebieng M. "Vaccination coverage and timelines among children 0-6 months, Democratic Republic of Congo: a prospective cohort study". *Maternal and Child Health*. 2017 May;21(5):1055-1064

Non-Peer-Reviewed Publications

1. **Zivich PN**, Ross RK. "RE: 'Using numerical methods to design simulations: revisiting the balancing intercept'". *American Journal of Epidemiology*. In-press
2. Smith NR, **Zivich PN**, Frerichs L. "Social influences on obesity: current knowledge, emerging methods, and directions for future research and practice". *Current Nutrition Reports*. 2020 March; 9(1):31-41
3. Aiello AE, Renson A, **Zivich PN**. "Social media- and internet-based surveillance for public health". *Annual Reviews of Public Health*. 2020; 41

Invited Presentations

1. **Zivich PN**, Cole SR. (2021) "A pragmatic stance on Bayesian and Frequentist methods with high-dimensional data". Poster Presentation at the 54th annual Society for Epidemiologic Research. June 22-25, 2021 Virtual.
2. **Zivich PN**. (2021) "Efficient machine learning for causal effects". Health Data Science for Impact Workshop at Singapore Institute for Clinical Sciences. March 16-18, 2021 Virtual.
3. **Zivich PN**, Hudgens MG, Moody J, Brookhart MA, Weber DJ, Aiello AE. (2020) "Examining the utility of targeted maximum likelihood estimation for network data". Oral Presentation at the 53rd annual Society for Epidemiologic Research. December 15-18, 2020 Virtual.
4. **Zivich PN**. (2019) "Application of potential outcomes in social exposures". Invited oral presentation at University of North Carolina at Chapel Hill Social Epidemiology Seminar. October 9, 2019. Chapel Hill, NC.
5. **Zivich PN**, Volfovsky A, Moody J, Aiello AE. (2019) "Assortativity by Treatment in Social Networks and Bias in Population Health Studies". Oral Presentation at the Interdisciplinary Association of Population Health Scientists Meeting. October 1-4, 2019. Seattle, WA.
6. **Zivich PN**, Edwards JK, Keil AP. (2019) "An Inverse Probability Weighting Approach to Correct for Left Truncation". Oral Presentation at the 52nd Annual Society for Epidemiologic Research (SER) Meeting. June 18-21, 2019. Minneapolis, MN
7. **Zivich PN**, Volfovsky A, Moody J, Aiello AE. (2019) "Assortativity by Treatment in Social Networks and Bias". Poster Presentation at the Symposium on Biosocial Approaches to Population Health across the Life Course. May 13, 2019. Chapel Hill, NC
8. **Zivich PN**. (2018) "Better understanding transmission: a social network approach". Invited oral presentation at University of North Carolina at Chapel Hill Social Epidemiology Seminar. September 26, 2018. Chapel Hill, NC.
9. **Zivich PN**, Moody J, Aiello AE. (2018) "Using Networks to better estimate vaccine effectiveness". Poster Presentation at the 51st Annual Society for Epidemiologic Research (SER) Meeting. June 19-22, 2018. Baltimore, MD
10. **Zivich PN**, Volfovsky A, Moody J, Aiello AE. (2018) "Using Networks to better estimate Vaccine Effectiveness". Oral Presentation at Social Networks and Health. May 14, 2018. Durham, NC
11. **Zivich PN**, Eisenberg MC, Walsh A, Aiello AE. (2017) "Smartphone as a Tool for Deep Epidemiologic Data on Social Networks". Oral Presentation in Infectious Disease session at the 50th Annual Society for Epidemiologic Research (SER) Meeting. June 20-23, 2017. Seattle, WA
12. **Zivich PN**, Tatham L, Lung K, Tien J, Bollinger CE, Bower JK. (2016) "Influenza vaccination status and outcomes among hospitalized patients in Ohio 2011-2014". Oral Presentation at the 30th Annual Hayes Graduate Research Forum. February 22, 2016. Columbus, OH
13. **Zivich PN**, Bower JK, Klein EG. (2015) "Perceptions of Tobacco Policies from National Social Fraternities and Sororities". Poster Presentation at the 20th Annual Denman Undergraduate Research Forum. March 25, 2015. Columbus, OH

Honors and Awards

- 2017–2019 Social Network and Health Fellow at Duke Network Analysis Center
- 2017 Member of Delta Omega, Honorary Society in Public Health
- 2015 Sigma Xi Scientific Research Society

Reviewer Contributions

American Journal of Epidemiology, Annals of Epidemiology, Epidemiology, BMC Medical Research Methodology, Influenza and Other Respiratory Viruses, International Journal of Environmental Research and Public Health, International Journal of Epidemiology, International Journal of Hygiene and Environmental Health, Journal of Infectious Diseases, Nature – Scientific Reports, PLoS One, Public Health Reviews, Social Forces, Statistics in Medicine

Open-Source or Public Contributions

- zEpid Creator, maintainer
(Python)
- Delicatessen Creator, maintainer
(Python)
- MossSpider Creator, maintainer
(Python)
- Lifelines Contributor
(Python)