PROMOTION RECOMMENDATION
The University of Michigan
School of Public Health
Department of Epidemiology

Jonathan L. Zelner, assistant professor of epidemiology, Department of Epidemiology, School of Public Health, is recommended for promotion to associate professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health.

Academic Degrees:
Ph.D.   2011   University of Michigan, Sociology and Public Policy, Ann Arbor, MI
M.S.W.   2005   Washington University, Social Work, St. Louis, MO
B.A.   2003   Haverford College, Sociology, Haverford, PA

Professional Record:
2020 – Present   Core Faculty Member, Michigan Influenza Center, Department of Epidemiology, University of Michigan, Ann Arbor, MI
2017 – Present   Assistant Professor, Department of Epidemiology, University of Michigan, Ann Arbor, MI
2017 – Present   Core Faculty Member, Center for Social Epidemiology and Population Health, Department of Epidemiology, University of Michigan, Ann Arbor, MI
2017 – Present   Faculty Affiliate, Center for the Study of Complex Systems, University of Michigan, Ann Arbor, MI
2017 – Present   Faculty Affiliate, Michigan Institute for Data Science, University of Michigan, Ann Arbor, MI
2017 – Present   Faculty Affiliate, Michigan Institute for Computational Discovery and Engineering, University of Michigan, Ann Arbor, MI
2016 – 2016   Post-doctoral Fellow, Department of Epidemiology and Microbial Diseases, Yale University, New Haven, CT
2014 – 2016   Health and Society Scholar, Robert Wood Johnson Foundation Health and Society Scholars Program, Columbia University, New York NY
2011 – 2014   NIH Fogarty International Center, Research and Policy for Infectious Disease Dynamics Postdoctoral Research Associate, Department of Ecology and Evolutionary Biology, Princeton, NJ

Summary of Evaluation:
Teaching: Professor Zelner is a highly innovative teacher who has made key contributions to the department's graduate training programs, as well as the school's undergraduate and online M.P.H. programs. His teaching portfolio includes four elective courses that he developed or co-developed: PUBHLTH 405 (Social History of Infectious Disease), EPID 592 (Introduction to Spatial Epidemiology and GIS for Public Health, with Dr. Pete Larson), EPID 594 (Applications of Spatial Epidemiology), and EPID 684 (Theory and Applications of Spatial Epidemiology). Professor Zelner has received exceptionally strong teaching evaluations. His Q1 scores range from 4.5-5, and his Q2 scores range from 4.9-5. During his time in rank, Professor Zelner has chaired or co-chaired three doctoral dissertation committees and served on the dissertation committees of an additional eight students. He has also mentored or co-mentored two post-doctoral fellows. To-date, his doctoral students have published five first-authored publications.

Research: Professor Zelner's primary research focus is on modeling the biological, social, and environmental drivers of infectious disease transmission. His work is motivated by the conviction that the theories and analytic methods of social sciences need to be deeply integrated with biological models of transmission and disease progression for these to be useful tools for achieving lasting gains in health equity. This focus on synthesizing multiple determinants of risk is evident in the diverse methodological approaches he employs, including disease mapping and spatial analysis, Bayesian hierarchical modeling of infection risk using cohort data, and theoretical and applied infectious disease transmission modeling. His current research program is centered on developing innovative approaches to decomposing the factors that drive heterogeneity in infectiousness, susceptibility, and exposure to infectious disease.

Professor Zelner is an author on 44 peer-reviewed published articles, with 29 ince 2017. Of these, he is first author on six and last author on six. He is also the senior author on a peer reviewed book chapter published in 2020. Professor Zelner is the principal investigator (PI) on two Centers for Disease Control and Prevention (CDC) National Center for Immunization and Respiratory Diseases (NCIRD) U01 grants. He is also the PI on a grant from the Simons Foundation to continue his research on racial inequality in COVID-19 outcomes in the United States. Professor Zelner is a co-investigator on an additional five current grants, including an R01 on which he is the University of Michigan subcontract PI. He has a pending National Institutes of Health (NIH) R01 grant, where he would be the PI, utilizing systems modeling to address the social and biological drivers of disparities in infection and mortality from emerging infectious diseases.

Recent and Significant Publications:
Masters, N.B., Eisenberg, M.C., Delamater, P.L., Kay, M., Boulton, M.L., Zelner, J.L. (2020). Fine-scale spatial clustering of measles nonvaccination that increases outbreak potential is obscured by aggregated reporting data. *PNAS*, 117(45): 28506-28514. doi:10.1073/pnas.2011529117.
Zelner, J.L., Trangucci, R., Naraharisetti, R., Cao, A., Malosh, R., Broen, K., Masters, N., Delamater, P. (2021). Racial disparities in COVID-19 mortality are driven by unequal infection risks. *Clin Infect D*is, 72(5):e88-e95.
Zelner, J.L., Murray, M.B., Becerra, M.C., Galea, J., Lecca, L., Calderon, R., Yataco, R., Zhang, Z., Manjourides, J., Grenfell, B.T., Cohen, T. (2016). Linking spatial and molecular genetic data to identify hotspots of transmitted multidrug-resistant tuberculosis: a prospective cohort study. *Journal of Infectious Diseases*, 213(2):287-294.
Zelner, J.L., Petrie, G., Trangucci, R., Martin, E.T., Monto, A.S. (2019). Effects of sequential Influenza A(H1N1)pdm09 vaccination on antibody waning. *Journal of Infectious Diseases*, 220(1):12-19. doi: 10.1093/infdis/jiz055.
Masters, N.B., Delamater, P., Boulton, M., Zelner, J.L. (2021). Measuring Multiple Dimensions and Indices of Non-Vaccination Clustering in Michigan: 2008-2018. *American Journal of Epidemiology*, 190(6):1113-1121.

Service: Professor Zelner has a strong record of service. Within the department, he has previously served on the doctoral committee and the master's committee and he currently serves as a track lead for master's students in the general epidemiology program. He also served on two departmental search committees. At the school level, Professor Zelner served on an ad hoc dean's advisory committee to provide updates on local and state-wide developments in the COVID-19 pandemic. Significant service activities outside the university include serving on the Models for Infectious Disease Agent Systems (MIDAS) network and leading a National Science Foundation (NSF) working group, as well as contributions to the COVID-19 response in the state of Michigan. Upon the request of the Michigan Department of Health and Human Services, Professor Zelner led the

development of a website to provide real-time updates on spatiotemporal patterns of COVID-19 incidence in Michigan. Over the past 18 months, covidmapping.org has become an important source of information on the pandemic for the state of Michigan, having been featured as part of the daily COVID-19 update on the news site mlive.com. He is currently the lead of an NSF Working Group to address social disparities in COVID-19 infection and mortality risk in the United States that is part of the CONVERGE program on disaster response. He has also been a member of the NIH MIDAS network for infectious disease modeling since 2018. Professor Zelner has served as a grant reviewer for the CDC, Tel Aviv University, and the United Kingdom Medical Research Council. He has served as an ad hoc reviewer for numerous high-impact journals, including *Science*, *Proceedings of the National Academy of Sciences*, and *American Journal of Epidemiology*, among others. During the past year, Professor Zelner has given 27 media interviews, including seven with the *New York Times* and one, on camera, with CBS Sunday Morning.

External Reviewers:
Reviewer A: "Jon is in the top 20% of his epidemiology peer group, and if one factors in the originality of the social/sociological part of his work, he would be in an even higher percentile. I look forward to his work blending the sociological work of non-communicable disease into infectious disease models, and this should lead to a major step forward in the way we understand health disparities and the impact they have on epidemics. Jon would certainly be recommended for tenure at [my university and department] for his contributions in epidemiology."

Reviewer B: "It is clear that Dr. Zelner is a sophisticated thinker when it comes to understanding spatial components of infectious diseases especially with tuberculosis, norovirus, and influenza and now COVID-19. He has shown himself to be highly skilled in epidemiological methods, design, and theory as well as spatial analysis and the ideas and theories behind the analysis. His accomplishments in research, teaching, mentoring, and service are impressive. I recommend that you grant Dr. Jonathan Zelner tenure at the Associate Professor level with no reservations."

Reviewer C: "Dr. Zelner's performance in research, teaching and service…is very strong… His research tackles significant challenges…we face with new pandemics, vaccination programs and health disparities. He is successful in integrating his teaching and mentorship with his research, as evidenced also by the success of his mentees. I consider his record to be at least on par with other epidemiology researchers at his career stage, with productive, high quality and, in much of his work, original and important contributions to basic and applied science. His ultimate potential is high… I recommend Dr. Jonathan Zelner's enthusiastically and without reservation for promotion to Associate Professor with Tenure in the Department of Epidemiology at the University of Michigan."

Reviewer D: "Dr. Zelner has taken an active role in supporting public health action in the response to the COVID-19 pandemic. …In engaging in these activities, Dr. Zelner has been an important member of the wider communities response to the COVID-19 pandemic, and it is impressive that he has been able to do so while maintaining his trajectory of increased research output, including work not directly related to the pandemic….Dr. Zelner has shown an admirable record of accomplishment in his career thus far, and has been particularly successful since joining the faculty at the University of Michigan...I believe he is deserving of promotion and will continue to be an asset to your department for years to come."

Reviewer E: "Dr. Zelner is a versatile and rigorous researcher in quantitative approaches to infectious disease epidemiology, making impressive and distinctive contributions at the interface with social sciences. He is establishing a research program of real interest and lasting value… I have

no doubt that Dr. Zelner would be awarded tenure at my institution…I see Jonathan Zelner as a rising leader in epidemiological modelling, particularly in his chosen area at the interface of social (and spatial) epidemiology and infectious disease dynamics. His research program is accelerating, with exciting and substantive work in several important systems, and it is clear that he is hitting his stride and thriving in his position at Michigan. I give his promotion my unreserved support and look forward to watching his accomplishments in the years to come."

Reviewer F: "Dr. Zelner is internationally recognized as an innovative, versatile, and collaborative epidemiological modeler, particularly at the interface of infectious disease dynamics, vaccination, surveillance and socioeconomic disparities. While in the rank of Assistant Professor, Dr. Zelner has maintained a high and accelerating level of scholarship, funding, mentorship, and service and would easily meet the bar for promotion to associate professor at my institution…"

Reviewer G: "…Dr. Zelner has made important contributions to understanding the mechanisms that underlie health disparities for respiratory infections as well as to the methods that are used to understand heterogeneity in infection risk. He has demonstrated a strong upward trajectory in publication output and funding success, which suggests excellent potential for future scholarly contributions. …He has…combined [this] with his successful development of new courses at the graduate and undergraduate levels and his service contributions. I have no hesitation in recommending him for promotion to Associate Professor with tenure."

Summary of Recommendation: Professor Zelner's research focuses on modeling the biological, social, and environmental drivers of infectious disease transmission. He is an innovative teacher and mentor and provides exceptional service to the department, school, university, and externally at the regional, national, and international levels. It is with the support of the School of Public Health Executive Committee that I recommend Jonathan L. Zelner for promotion to associate professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health.

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F. DuBois Bowman, Ph.D.
Dean, School of Public Health

May 2022