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EMPLOYMENT

- Fall 2014-Present **Health and Society Scholar, Robert Wood Johnson Health and Society Scholars Program** at Columbia University.
- 2011-Summer 2014 **NIH Fogarty International Center, Research and Policy for Infectious Disease Dynamics (RAPIDD) Postdoctoral Research Associate** in the lab of Prof. Bryan Grenfell, Princeton University, Dept. of Ecology and Evolutionary Biology

EDUCATION

- Ph.D. **University of Michigan, Ann Arbor.** Sociology and Public Policy. 2011.
- Dissertation title:* “Understanding Infectious Disease Transmission at Three Levels: Household, Community and Region”
- Dissertation committee:* Joseph Eisenberg, James House (co-chairs), Elizabeth Bruch, Ana Diez-Roux, Jeffrey Morenoff
- Certificate **Santa Fe Institute Complex Systems Summer School (SFI-CSSS).** 2008.
- SFI-CSSS is a selective program that brings graduate students, postdoctoral fellows and junior faculty together to learn a wide variety of complex systems concepts and methods.
- M.S.W. **Washington University in St. Louis.** Social Work. 2005
Concentration in health and social development.
- B.A. **Haverford College.** Sociology. 2003.

PUBLICATIONS

Zelner JL, Murray MB, Becerra MC, Galea J, Lecca L, Calderon R, Yataco R, Zhang Z, Manjourides J, Grenfell BT, 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.

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Morris SE*, **Zelner JL***, Fauquier DA, Rowles TK, Rose PE, Gulland F, Grenfell BT. *Partially observed epidemics in wildlife hosts: modelling an outbreak of dolphin morbillivirus in the northwestern Atlantic, June 2013–2014. Journal of the Royal Society Interface.* 2015;12(112). (*Authors contributed equally.)

Thompson C*, **Zelner JL*** Hoang Nhu TD, Phan MV Le Phuc H, Hung NT, Duong VT, Ngoc NM, Tuan HM Tu VHT, Vi LL, Chau NVV, Hien TT, von Clemm E, Storch H, Thwaites G, Grenfell BT, Baker S. Modeling the impact of environmental and climatic variation on the spatiotemporal trends of hospitalized pediatric diarrhea in Ho Chi Minh City, Vietnam. *Health and Place.* 35:147-154. (*Authors contributed equally.)

Faust C, **Zelner JL**, Brasseur P, Valliant M, Grenfell BT, Metcalf CJ, Olliaro P. (2015). Modeling behavioral, environmental and epidemiological factors that influence the uptake of ‘Test and Treat’ policies for malaria in a rural district of southwestern Senegal. *The American Journal of Tropical Medicine and Hygiene.* In Press.

Zelner JL, Murray MB, Becerra MC, Galea J, Lecca L, Calderon R, Yataco R, Zhang Z, Grenfell BT, Cohen T. (2014). Age-specific risks of tuberculosis infection from household- and community-exposures suggest opportunities for interventions in a high-burden setting. *American Journal of Epidemiology.* 180(8):853-861.

Zelner JL, Murray MB, Becerra MC, Galea J, Lecca L, Calderon R, Yataco R, Zhang Z, Grenfell BT, Cohen T. (2014). Protective effects of Bacillus Calmette-Guerin vaccination and isoniazid preventive therapy among the household contacts of diagnosed tuberculosis cases: A cohort study. *American Journal of Respiratory and Critical Care Medicine,* 189(7):853-859.

Zelner JL, Lopman BA, Hall AJ, Ballesteros S, Grenfell BT. (2013). Linking Time-Varying Symptomatology and Intensity of Infectiousness to Patterns of *Norovirus* Transmission. *PLOS One.* 8(7):e68413.

Milbrath MO, Spicknall I, **Zelner JL**, Moe CL, Eisenberg, JNS. (2013). Infectiousness duration heterogeneity and population outbreak risk: A systematic review of long-term viral shedding in *Norovirus* infection. *Epidemiology and Infection,* 141(8):1572-84.

Zelner JL, Trostle J, Goldstick JE, Cevallos W, House, JS, Eisenberg JNS. (2012). Social connectedness and disease transmission: social organization, cohesion, village context, and infection risk in rural Ecuador. *American Journal of Public Health,* 102(12):2233-2239.

Katz, DM, Gubler J, **Zelner JL**, Provins E, Ingall E. (2011). Reproduction of Hierarchy? A Social Network Analysis of the American Law Professoriate. *Journal of Legal Education,* 61(1):76-105.

Zelner JL, King, AA, Moe CL, Eisenberg JNS. (2010). How Infections Propagate After Point Source Outbreaks: An Analysis of Secondary *Norovirus* Transmission. *Epidemiology,* 21(5):711-715.

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Bommarito MJ, Katz DM, **Zelner JL**, Fowler JH. (2009). Distance Measures for Dynamic Citation Networks. *Physica A*, 381(19):4201-4208.

Vaughn MG, Howard MO, Foster KA, Dayton MK, **Zelner JL**. (2006). Substance Use in a Statewide Population of Incarcerated Juvenile Offenders. *Journal of Evidence Based Social Work*, 2(1-2):155-173.

SELECTED MANUSCRIPTS IN PREPARATION

Zelner JL, Muller C, Feigenbaum J. “Understanding the role of changes in urban population density and regional migration on racial disparities in city-level declines in U.S. tuberculosis mortality during the pre-antibiotic era: 1900-1940.” To be submitted to *Proceedings of the National Academy of Sciences*.

Zelner JL. “Why are country-level disparities in global Tuberculosis rising as global incidence is falling? Understanding the implications of social and economic inequality for TB control and elimination.” To be submitted to the *American Journal of Public Health*.

Zelner JL, Murray M, Becerra M., Cohen T. “Understanding the implications of spatial heterogeneity in community infection risks for the citywide efficacy of Isoniazid preventive therapy in Lima, Peru.” To be submitted to the *International Journal of Epidemiology*.

Zelner JL, Muller C, Papachristos A. “Understanding the origins of outbreaks of urban gun violence and police-involved shootings using spatiotemporal point-process models.” To be submitted to the *American Sociological Review*.

AWARDS, FELLOWSHIPS & GRANTS

2015 *Digitizing the United States Historical Mortality Statistics: 1900-1940*.
Seed grant (\$20,000) from the Robert Wood Johnson Foundation.

2012 *Environmental and social drivers of diarrheal disease risk in children under five in Ho Chi Minh City, Vietnam (\$30,000)*. Health Grand Challenges Grant, from the Woodrow Wilson School of Public Policy, Princeton University.

2011-2014 *Research and Policy for Infectious Disease Dynamics (RAPIDD) Postdoctoral Fellowship*. RAPIDD is an NIH/DHS program focused on developing rigorous dynamic modeling in infectious disease epidemiology.

2010 *NSF Dissertation Improvement Grant (\$10,000; Declined)*

2009 *Google Summer of Code (\$4,500)*.

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- 2008 *Google Summer of Code (\$4,500)*. Funding for summer project developing a library of statistical tools for fitting dynamic models to data at the University of Michigan.
- 2007-2009 *NSF IGERT-IDEAS Graduate Fellowship in Complex Systems Studies*.
- 2004 *Award for Excellence in Research*, Brown School of Social Work, Washington University in St. Louis.
- 2003 *Mitchell Ginsburg Scholarship*, Brown School of Social Work, Washington University in St. Louis.
- 2002 *Gertrude and Otto Pollak Grant (\$3,000)*, Bryn Mawr College, Department of Sociology.

TEACHING & MENTORSHIP

- 2015 Advised undergraduate summer research projects of Sarah Weinstein (Columbia Statistics/Psychology) and Yichen Wang (Columbia Statistics): “Spatiotemporal dependence between weather patterns and violent crime events in Philadelphia, 2006-2014.”
- 2013 Advised undergraduate thesis of Emmiliese von Clemm (Princeton Ecology & Evolutionary Biology): “Spatial and social drivers of environmental exposure and diarrheal disease risk in *Ho Chi Minh City, Vietnam*.”
- 2012 Advised undergraduate thesis of Christopher Kelly (Princeton Computer Science): “Statistical modeling of *Norovirus* outbreaks.”
- 2011 Advised undergraduate thesis of Miky Melaku (Princeton Ecology & Evolutionary Biology): “Understanding the effects of multiple-testing policies on *Shigella Sonnei* risk in Philadelphia”
- 2008-2009 **Winter 2008:** Developed curriculum for U-M’s first undergraduate course in Complex Systems studies with Prof. Scott Page.
- Fall 2008:** Teaching Assistant, University of Michigan, Center for the Study of Complex Systems, “Introduction to Dynamic Modeling for Complex Systems” with Prof. Scott Page.

Teaching interests:

Social epidemiology/health inequality; spatial analysis/GIS; social network analysis; applied regression analysis; dynamic modeling of social and biological systems; MCMC/Bayesian

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statistical methods; statistical computing/programming.

LEADERSHIP & SERVICE

2013 **Co-organizer, NIH-RAPIDD Workshop on Networks and Individual-based methods in Epidemiology, Princeton University, October 7-8, 2013.**

An international workshop bringing over 25 researchers in epidemiology, statistics, and social science together to discuss future directions of methods for fitting network and individual-based models to epidemiological datasets.

2009-2010 **Co-Chair, Complex Systems Advanced Academic Workshop (CSAAW), University of Michigan Center for the Study of Complex Systems.**

CSAAW is a Rackham Graduate School sponsored workshop that brings students from various disciplines together to develop research partnerships and present work in the area of complex adaptive systems.

Peer-reviewer for the following journals:

Proceedings of the National Academy of Sciences, American Journal of Epidemiology, Epidemiology, PLOS Neglected Tropical Diseases, PLOS Computational Biology, Journal of the Royal Society Interface, Emerging Infectious Diseases, BMC Public Health, BMC Infectious Diseases.

SELECTED PROFESSIONAL PRESENTATIONS

“Tuberculosis as a symptom of stratification: Understanding racial disparities in TB mortality in the 20th century United States”. Invited speaker, Infectious Disease Epidemiology Seminar, Dornsife School of Public Health, Drexel University. February 5, 2016.

“Using spatial and genetic data to understand spatial clustering of multi-drug resistant tuberculosis in Lima, Peru”. Invited speaker, Infectious Disease Modeling Seminar, Yale School of Public Health. February 6, 2015.

“Social network analysis in infectious disease epidemiology.” Guest lecture. University of Pennsylvania, Dept. of Epidemiology and Biostatistics. April 7, 2014.

“Age-specific risks of tuberculosis infection from household- and community-exposures suggest opportunities for interventions in a high-burden setting.” *Epidemics4 Conference*, Amsterdam, The Netherlands: November 19-22, 2013.

“How social connectedness can inhibit infectious disease transmission.” *Epidemics3 Conference*,

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Boston, MA: November 30-December 22, 2011.

“Statistical methods for social network analysis.” Invited Participant, HarambeeNet Workshop on Social Networks and Education. Duke University, Department of Computer Science, Durham NC: July 7-9, 2010.

“How infections propagate after point source outbreaks: An analysis of secondary norovirus transmission.” Harvard School of Public Health, Dept. of Epidemiology Seminar Series, March 29, 2010.

“Network techniques for social epidemiology.” Invited Participant, HarambeeNet Workshop on Social Networks and Education. Duke University, Department of Computer Science, Durham NC: July 20-21, 2009.

“Statistical inference for household transmission systems: An analysis of secondary transmission in a Norovirus outbreak.” *Epidemics I* Conference. Asilomar, CA. December 1-4, 2008.

PROGRAMMING LANGUAGES

In order of proficiency: R (and Stan/BUGS), Python, Javascript (d3), C++, Julia, Go, Matlab

OPEN SOURCE SCIENTIFIC SOFTWARE

hotspotr: An R package for the detection of disease hotspots using distance-based mapping. Source and documentation available at <http://github.com/hotspotr>.