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Appointments

University of California, Berkeley
Assistant Professor, Division of Epidemiology, School of Public Health 2018–

Center for Health Security, Johns Hopkins Bloomberg School of Public Health
Fellow, Emerging Leaders in Biosecurity Initiative 2018

Center for Communicable Disease Dynamics, Harvard TH Chan School of Public Health
Research associate 2018
Postdoctoral research fellow, laboratory of Marc Lipsitch 2017–18

Education

PhD, Epidemiology of Microbial Diseases, Yale University 2017
MPhil, Epidemiology of Microbial Diseases, Yale University 2016
BA, 1^{st} Class Hons., Geography and Music, McGill University (Canada) 2013

Grants

Active

CDC California Emerging Infections Program. Scope of impact for vaccines against Group A Streptococcus in the United States (co-Investigator).
Total costs for sub-award: $28,000
Project period: Jul 2018–Dec 2018

International Symposium on Pneumococci and Pneumococcal Diseases/Pfizer, Inc. Robert Austrian Research Award: Implications of pneumococcal conjugate vaccines for long-term sequelae of pediatric infections (PI: **JA Lewnard**)
Total costs for project period: $25,000
Project period: Apr 2018–*unrestricted*

Pfizer, Inc. Changes in antimicrobial prescribing for otitis media in the era of pneumococcal conjugate vaccination (PI: **JA Lewnard**)
Total costs for project period: $199,833
Project period: Jan 2018–Dec 2018

Pfizer, Inc. Modulation of susceptibility to otitis media by early-life infection (co-PIs: **JA Lewnard** & M Lipsitch)
Total costs for project period: $190,126
Project period: Mar 2017–Apr 2018 (*extension to Oct 2018*)

Publications

Articles in peer-reviewed journals

Original research

[24] **Lewnard JA**, Tedijanto C, Cowling BJ, Lipsitch M. Measurement of vaccine direct effects under the test-negative design. *Am J Epidemiol* 2018; doi:10.1093/aje/kwy163.

[23] **Lewnard JA***, Tähtinen PA*, Laine MK, Lindholm L, Jalava J, Huovinen P, Lipsitch M, Ruohola A. Impact of antimicrobial treatment for acute otitis media on carriage dynamics of penicillin-susceptible and penicillin–non-susceptible *Streptococcus pneumoniae*. *J Infect Dis* 2018; doi:10.1093/infdis/jiy343. (**contributed equally*)
- Editor's Choice Article
- Accompanying editorial: Flasche S, Atkins KE. Balancing benefits and risks of antibiotic use. *J Infect Dis* 2018; doi:10.1093/infdis/jiy344.

[22] Hubbard TP, Billings G, Dörr T, Sit B, Warr AR, Kuehl CJ, Kim M, Delgado F, Mekalanos JJ, **Lewnard JA**, Waldor MK. A live vaccine rapidly protects against cholera in an infant rabbit model. *Sci Transl Med* 2018; **10**:eeap8423. doi:10.1126/scitranslmed.aap8423
- Accompanying editorial: Hall RH. Curbing cholera. *Sci Transl Med* 2018; **10**:eeat9483. doi:10.1126/scitranslmed.aat9483
- Coverage in AAAS News, Scientific American, other outlets (link).

[21] **Lewnard JA**, Givon-Lavi N, Tähtinen PA, Dagan R. Pneumococcal phenotype and interaction with nontypeable *Haemophilus influenzae* as determinants of otitis media progression. *Infect Immun* 2018; **86**:e00727-17. doi:10.1128/IAI.00727-17.
- Accompanying editorial: Pelton SI. Deconstructing progression from pneumococcal colonization to disease. *Infect Immun* 2018; **86**:e00225-18. doi:10.1128/IAI.00225-18.

[20] **Lewnard JA**, Grad Y. Vaccine waning and mumps re-emergence in the United States. *Sci Transl Med* 2018; **10**:eaao5945. doi:10.1126/scitranslmed.aao5945.
- Coverage in Science, NEJM, New York Times, Forbes, CNN, CBS News, Philadelphia Inquirer, other outlets (link)

[19] Phelps MD, Azman AS, **Lewnard JA**, Antillón M, Simonsen L, Andreasen V, Jensen PKM, Pitzer VE. The importance of thinking beyond the water supply in cholera epidemics: a historical urban case study. *PLoS Negl Trop Dis* 2017; **11**:e0006103. doi.org/10.1371/journal.pntd.0006103.

[18] **Lewnard JA**, Givon-Lavi N, Weinberger DM, Lipsitch M, Dagan R. Pan-serotype reduction in progression of *Streptococcus pneumoniae* to otitis media after rollout of pneumococcal conjugate vaccines. *Clin Infect Dis* 2017; **65**:1853–61. doi:10.1093/cid/cix673.

[17] **Lewnard JA**, Lopman BA, Parashar UD, Bar-Zeev N, Samuel P, Guerrero ML, Ruiz-Palacios G, Kang G, Pitzer VE. Naturally-acquired immunity against rotavirus infection and gastroenteritis in children: paired re-analyses of birth-cohort studies. *J Infect Dis* 2017; **216**:317–26. doi:10.1093/infdis/jix310.

[16] Kunkel A, **Lewnard JA**, Pitzer VE, Cohen T. Antimicrobial resistance risks of cholera prophylaxis for United Nations peacekeepers. *Antimicrob Agents Chemother* 2017; **61**:e00026-17. doi:10.1128/AAC.00026-17.

[15] Kürüm E, Warren JL, Schuck-Paim C, Lustig R, **Lewnard JA**, Fernandes RM, Fuentes R, Bruhn CAW, Taylor RJ, Simonsen L, Weinberger DM. Bayesian model averaging with change points to assess the impact of vaccination and other public health interventions. *Epidemiology* 2017;**28**:889–97. doi:10.1097/EDE.0000000000000719.
- Awarded Kenneth Rothman Prize for the best paper published in *Epidemiology* in 2017 (link).

[14] Anwar MY, **Lewnard JA**, Parikh S, Pitzer VE. Time series analysis of malaria in Afghanistan: using ARIMA models to predict future trends in incidence. *Malaria J* 2016; **15**:566. doi:10.1186/s12936-016-1602-1.

[13] **Lewnard JA**, Townsend JP. Climatic and evolutionary drivers of phase shifts in the plague epidemics of colonial India. *Proc Natl Acad Sci U S A* 2016; **113**:14601–8. doi:10.1073/pnas.1604985113.

[12] Pham TTH, Apparicio P, Landry S, **Lewnard JA**. Disentangling the effects of urban form and socio-demographic context on street tree cover: A multi-level analysis from Montreal. *Landscape Urban Plan* 2017; **157**:422–33. doi:10.1016/j.landurbplan.2016.09.001.

[11] **Lewnard JA**, Huppert A, Givon-Lavi N, Pettigrew MM, Regev-Yochay G, Dagan R, Weinberger DM. Density, serotype diversity, and fitness of *Streptococcus pneumoniae* in upper respiratory co-colonization with nontypeable *Haemophilus influenzae*. *J Infect Dis* 2016; **214**:1411–20. doi:10.1093/infdis/jiw381.

[10] **Lewnard JA**, Gonsalves G, Ko AI. Low risk of international Zika virus spread due to the 2016 Olympics in Brazil. *Ann Intern Med* 2016; **165**:286–7. doi:10.7326/M16-1628.
- Coverage in The New York Times, The Guardian, The LA Times, Time, ABC News, CNBC, other outlets (link)

[9] **Lewnard JA**, Antillón M, Gonsalves G, Miller AC, Ko AI, Pitzer VE. Strategies to prevent cholera introduction during international personnel deployments: a computational modeling analysis based on the 2010 Haiti outbreak. *PLoS Med* 2016; **13**:e1001947. doi:10.1371/ journal.pmed.1001947.
- Coverage in The Guardian, BBC World Service, WBUR-NPR Boston
- Referenced by UN Special Rapporteurs as evidence of the UN's inadequate response in letter to Former Secretary-General Ban Ki Moon

[8] **Lewnard JA**, Givon-Lavi N, Huppert A, Pettigrew MM, Regev-Yochay G, Dagan R, Weinberger DM. Epidemiological markers for interactions among *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Staphylococcus aureus* in upper respiratory tract carriage. *J Infect Dis* 2015; **213**:1596–605. doi:10.1093/infdis/jiv761.

[7] **Lewnard JA**, Jirmanus L, Júnior NN, Machado PR, Glesby MJ, Ko AI, Carvallho EM, Schriefer A, Weinberger DM. Forecasting temporal dynamics of cutaneous leishmaniasis in Northeast Brazil. *PLoS Negl Trop Dis* 2014; **8**:e3283. doi:10.1371/journal.pntd.0003283.

[6] **Lewnard JA***, Ndeffo-Mbah ML*, Alfaro-Murillo JA, Altice FL, Bawo L, Nyenswah TG, Galvani AP. Dynamics and control of Ebola virus transmission in Montserrado, Liberia: a mathematical modelling analysis. *Lancet Infect Dis* 2014; **14**:1189–95. doi:10.1016/S1473-3099(14)70995-8. (**contributed equally*)
- Cover article, December 2014 issue
- Accompanying editorial: Fisman D, Tuite AR. Ebola: no time to waste. *Lancet Infect Dis* 2014; **14**:1164–5. doi:10.1016/S1473-3099(14)70851-5.
- Coverage in The Telegraph, The Guardian, The Washington Post, Time, Reuters, Newsweek, other outlets (link)

[5] **Lewnard JA**, Berrang-Ford L, Lwasa S, Bambaiha Namanya D, Patterson KA, Donnelly B, Kulkarni MA, Harper SL, Ogden NH, Carcamo CP, IHACC Research Team. Relative undernourishment and food insecurity associations with *Plasmodium falciparum* among Batwa pygmies in Uganda: evidence from a cross-sectional survey. *Am J Trop Med Hyg* 2014; **91**:39–49. doi:10.4269/ajtmh.13-0422.

[4] **Lewnard JA**, Berrang-Ford L. Internet-based partner selection and risk for unprotected anal intercourse in sexual encounters among men who have sex with men: a meta-analysis of observational studies. *Sex Transm Infect* 2014; **90**:290–6. doi:10.1136/sextrans-2013-051332.

Reviews and commentaries

[3] **Lewnard JA**. Ebola virus disease: 11,323 deaths later, how far have we come?. *Lancet* 2018; doi:10.1016/S0140-6736(18)31443-0.

[2] **Lewnard JA**, Cobey S. Immune history and influenza vaccine effectiveness. *Vaccines* 2018; **6**:28. doi:10.3390/vaccines6020028.

Journal correspondence

[1] Rivers C, Alexander K, Bellan S, Del Valle S, Drake JM, Eisenberg JN, Eubank S, Ferrari M, Halloran ME, Galvani AP, Lewis BL, **Lewnard JA**, Lofgren E, Macal M, Marathe M, Ndeffo Mbah ML, Meyers LA, Meza R, Park A, Porco T, Scarpino SV, Shaman J, Vespignani A, Yang W. Ebola: models do more than forecast. *Nature* 2014; **515**:492. doi:10.1038/515492a.

Submitted manuscripts

[5] **Lewnard JA**, Hanage WP. Making sense of the variable consequences of pneumococcal serotype replacement. Submitted.

[4] **Lewnard JA**, Cowley LA. Serotype association with neonatal invasive potential in group B Streptococcus: a Bayesian analysis. Under review.

[3] Wohl S, Metsky HC, Schaffner SF, Piantadosi A, Burns M, **Lewnard JA**, Chak B, Krasilnikova LA, Siddle KJ, Matranga CB, Bankamp B, Hennigan S, Sabina B, Byrne EH, McNall RJ, Park DJ, Gharib S, Fitzgerald S, Barriera P, Fleming S, Lett S, Rota PA, Madoff LC, MacInnis BL, Yozwiak NL, Smole S, Grad YH, Sabeti PC. Co-circulating mumps lineages at multiple geographic scales. Pre-print from *bioRxiv*: doi:10.1101/343897.

[2] **Lewnard JA**, Lopman BA, Parashar UD, Bennett A, Bar-Zeev N, Cunliffe NA, Samuel P, Guerrero ML, Ruiz-Palacios GM, Kang G, Pitzer VE. Heterogeneous susceptibility to rotavirus infection and gastroenteritis in two birth cohort studies: parameter estimation and epidemiological implications. Pre-print from *bioRxiv*: doi:10.1101/242172.

[1] Pitzer VE, Bennett AI, Bar-Zeev N, Jere KC, Lopman BA, **Lewnard JA**, Parashar UD, Cunliffe NA. Strategies to improve rotavirus vaccine impact and effectiveness during the second year of life in Blantyre, Malawi: a mathematical modeling study. Under review.

Science outreach

[1] **Lewnard JA**. The Olympics won't spread Zika around the world. *The Conversation*, 25 July 2016. http://bit.ly/2au5kr9.

Teaching

Students supervised

Harvard TH Chan School of Public Health

Angel Rollo (undergraduate), *summer research project* 2018
Wilma Figueroa (undergraduate), *summer research project* 2018
Veronica Wang (undergraduate), *summer research project* 2017
Winston Kunkel (undergraduate), *summer research project* 2017

Courses taught

Fundaçao Oswaldo Cruz

International course in molecular epidemiology. 2018

Yale University

Developing research proposals for the Downs Fellowship in public health, *Primary instructor*. 2015–16
Quantitative methods in infectious disease epidemiology, *Graduate teaching fellow*. 2014–16
Introduction to public health surveillance, *Graduate teaching fellow*. 2016
Introductory statistics, *Head graduate teaching fellow*. 2015

Presentations

Engagements at external academic institutions

[2] The Broad Institute, Cambridge, Massachusetts. May 2017. *Invited seminar*.
[1] Columbia Mailman School of Public Health, New York, New York. October 2016. *Invited seminar*.

Policy and industry engagements

[2] Pfizer Corp., Collegeville, Pennsylvania. September 2017. *Invited presentation*.
[1] Biomedical Advanced Research and Development Authority (Office of the Assistant Secretary of Preparedness and Response, US Dept. Health and Human Services), Washington, DC. November 2014. *Invited presentation*.

Scientific conferences

[11–14] International Symposium on Pneumococci and Pneumococcal Diseases, Melbourne, Australia. April 2018. *Contributed oral presentations (4)*.

[10] Epidemics 6, Sitges, Spain. December 2017. *Poster*.

[9] Infectious Diseases Society of America IDWeek, San Diego, USA. October 2017..

[7–8] Infectious Diseases Society of America IDWeek, San Diego, USA. October 2017. *Contributed oral presentation, Poster*.

[6] American Society for Microbiology (ASM) Microbe, New Orleans, USA. June 2017. *Poster*.

[5] Twelfth International Rotavirus Symposium, Melbourne, Australia. September 2016. *Poster*.

[4] International Symposium on Pneumococci and Pneumococcal Diseases, Glasgow, UK. June 2016. *Contributed oral presentation*.

[3] Ecology and Evolution of Infectious Diseases, Ithaca, USA. June 2016. *Poster*.

[2] Vaccines for Enteric Diseases, Edinburgh, UK. July 2015. *Poster*.

[1] Palestinian-Israeli Collaborative Research Conference, Jerusalem, Israel. May 2015. *Invited oral presentation*.

Awards

Wilbur Downs Award, Yale School of Medicine ($7,500) 2015

Science Undergraduate Research Award, McGill Faculty of Science ($5,600, *1 per department per year*) 2013

Undergraduate Award, Canadian Association of Geographers (*1 per institution per year*) 2013

Service

Manuscript peer review

The Lancet, PNAS, The Lancet Public Health, Annals of Internal Medicine, PLoS Medicine, PLoS Biology, Emerging Infectious Diseases, International Journal of Epidemiology, Journal of Infectious Diseases, mSphere, Scientific Reports, PLoS Neglected Tropical Diseases, American Journal of Tropical Medicine and Hygiene, Epidemiologic Methods, Vaccine, International Journal of Infectious Diseases, Epidemics, Sexually Transmitted Infections, Innate Immunity, Epidemiology and Infection, AIDS and Behavior, PLoS ONE, BMC Infectious Diseases, Public Health Nutrition, International Journal of STD and AIDS

Institutional service

Epidemiology and Public Health Departmental Representative, Yale Graduate Student Assembly 2014–16

Professional ethics facilitator, Yale Graduate School of Arts and Sciences 2015–16