

CURRICULUM VITAE

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Education and Training

2017 PhD Global Infectious Diseases, Georgetown University, Washington, DC, USA
2010 BA French, Biological Sciences, Cornell University, Ithaca, NY, USA

Professional Experience

2025-present	Scientific Collaborator	University of Geneva
2020-2025	Research Associate	Johns Hopkins Bloomberg School of Public Health
2018-2019	Postdoctoral Fellow	Johns Hopkins Bloomberg School of Public Health
2010-2012	Research Assistant	Institute for Defense Analyses

Professional Activities

Society Memberships

American Society for Tropical Medicine and Hygiene, since 2019

Grant Review Panels

2024	Panelist, Division of Mathematical Sciences <i>US National Science Foundation</i>
2023	Ad Hoc Reviewer, Division of Social and Economic Sciences <i>US National Science Foundation</i>
September 2020	Reviewer, COVID-19 Urgent Grant Program, New Initiatives <i>MIDAS network</i>

Editorial and Other Peer Review Activities

Editorial Activities

2020-present JAMA Network Open Statistical Reviewer

Other Peer Review Activities

Reviewed for: American Journal of Epidemiology; American Journal of Public Health; American Journal of Managed Care; BMJ Open; Cost Effectiveness and Resource Allocation; eLife; Epidemics; F1000 Research; Heliyon; Journal of the Royal Society Interface; The Microbe; Nature Communications; PLoS Computational Biology; PLoS Medicine; PLoS Neglected Tropical Diseases; PLoS One; Science Advances; Simulation Modelling Practice and Theory; The American Naturalist; The Lancet Digital Health; Vaccine

Honors and Awards

- 2016 Outstanding Student Abstract, International Society for Disease Surveillance
- 2015 Graduate Student Service Award, Graduate Student Organization, Georgetown University
- 2014 First place for oral presentation, Medical Center Student Research Day, Georgetown University
- 2010 Phi Beta Kappa, Cornell University

Publications

Journal Articles

* indicates a mentored student or post-doctoral fellow; † indicates corresponding authorship; ‡ indicates equal contribution

1. Bugeme PM, Bugale PK, Trust FM, O'Driscoll M, Perez-Saez J, Bugwaja L, Shangula SM, Kasi W, Bengheya J, Ngai S, Martin AIC, Jackson J, Katoto P, Bahizire E, Mulopo-Mukanya N, Lessler J, Knee J, Vetter P, **Lee EC**, Mukadi-Bamuleka D, Azman AS, Malembaka EB (in press) Non-Sexual Community Transmission of Mpox Clade 1b in DR Congo. *Eurosurveillance*.
[doi:10.1101/2025.02.25.25322371](https://doi.org/10.1101/2025.02.25.25322371)
2. Perez-Saez J[‡], Bugeme PM[‡], O'Driscoll M[‡], Bugale PK, Trust FM, Bugwaja L, Shangula SM, Bengheya J, Ngai S, Martin AIC, Jackson J, Mulopo-Mukanya N, Knee J, Eckerle I, **Lee EC**, Mukadi-Bamuleka D, Lessler J, Azman AS, Malembaka EB (2025) The incubation periods of Mpox virus clade 1b. *Annals of Internal Medicine*.
[doi:10.7326/ANNALS-25-01016](https://doi.org/10.7326/ANNALS-25-01016)
3. Perez-Saez J[‡], Zheng Q[‡], Kaminsky J, Zou K, Demby MN, Alam C, Landau D, DePencier R, Langa JPM, Chilengi R, Okitayemba PO, Bwire G, Ezzo L, Ngomba AV, Mbarga NF, Okunga EW, Yennan S, Kapaya F, Ohize SO, Seriki AJ, Hegde ST, Sikder M, Lessler J, Datta A, Azman AS, **Lee EC**[†] (2025) Geographical shifting of cholera burden in Africa and its implications for disease control. *Nature Medicine*.
[doi:10.1038/s41591-025-03847-9](https://doi.org/10.1038/s41591-025-03847-9)
4. Xu H[‡], Tiffany A[‡], Luquero FJ, Kanungo S, Bwire G, Qadri F, Garone D, Ivers LC, **Lee EC**, Malembaka EB, Mendiboure V, Bouhenia M, Breakwell L, Azman AS (2025) Protection from killed whole-cell cholera vaccines: a systematic review and meta-analysis. *Lancet Global Health*. 13(7):E1203-E1212
[doi:10.1016/S2214-109X\(25\)00107-X](https://doi.org/10.1016/S2214-109X(25)00107-X)
5. Wiens KE, Miller MH, Costello DJ, Solomon AP, Hilbert SM, Shipper AG, **Lee EC**, Azman AS (2025) Care seeking for diarrheal illness: a systematic review and meta-analysis. *PLOS Global Public Health*. 5(4):e0004483
[doi:10.1371/journal.pgph.0004483](https://doi.org/10.1371/journal.pgph.0004483)
6. Koyuncu A[‡], Bugeme PM[‡], Dent J, Hutchins C, Xu H, Gallandat K, Cumming O, Matundanya J, Cikomola A, Rukakiza D, Nkombo M, Mufitini JS, Rumedeka BB, Akilimali L, **Lee EC**, Welo PO, Knee J, Azman AS, Malembaka EB (2025) Challenges with achieving and maintaining oral cholera vaccine coverage: insights from serial cross-sectional representative surveys in a cholera-endemic community in the Democratic Republic of the Congo. *BMJ Public Health*.(3) e001035
[doi:10.1136/bmjph-2024-001035](https://doi.org/10.1136/bmjph-2024-001035)
7. Lopez VK, Cramer EY, Pagano R, Drake JM, O'Dea EB, Linas BP, Ayer T, Xiao J, Adey M, Chhatwal J, Ladd MA, Mueller PP, Dalgic OO, Bracher J, Gneiting, Muhlemann A, Niemi J, Evan RL, Zorn M, Huang Y, Wang Y, Gerding A, Stark A, Jayawardena D, Le Khoa, Wattanachit N, Kanji AH, Rivadeneira AJC, Pei S, Shaman J, Yamana TK, Li X, Wang G, Gao L, Gu Z, Kim M, Wang L, Wang Y, Yu S, Wilson DJ, Tarasewicz SR, Suchoski B, Stage S, Gurung H, Baccam S, Marshall M, Gardner L, Jindal S, Nixon K, Lemaitre JC, Dent J, Hill AL, Kaminsky J, **Lee EC**, Lessler J, Smith CP, Truelove

- S, Kinsey M, Tallaksen K, Wilson S, Mullany LC, Shin L, Rainwater-Lovett K, Karlen D, Castro L, Fairchild G, Michaud I, Osthus D, Vespignani A, Chinazzi M, Davis JT, Mu K, Xiong X, Pastore y Piontti A, Zheng S, Gao Z, Cao W, Bian J, Li C, Xie X, Liu TY, Ferres JL, Zhang S, Walraven R, Chen J, Gu Q, Wang L, Xu P, Zhang W, Zou D, Gibson GC, Sheldon D, Srivastava A, Adiga A, Hurt B, Kaur G, Lewis B, Marathe M, Peddireddy AS, Porebski P, Venkatramanan S, Wang L, Prasad PV, Webber AE, Walker JW, Slayton RB, Biggerstaff M, Reich NG, Johansson MA (2024) Challenges of COVID-19 Case Forecasting in the US, 2020-2021. *PLOS Computational Biology*. 20(5):e1011200
[doi:10.1371/journal.pcbi.1011200](https://doi.org/10.1371/journal.pcbi.1011200)
8. Lemaitre JC, Loo SL, Kaminsky J, **Lee EC**, McKee C, Smith C, Jung SM, Sato K, Carcelen E, Hill AL, Lessler J, Truelove SA (2024) flepiMoP: the evolution of a flexible infectious disease modeling pipeline during the COVID-19 pandemic. *Epidemics*. 47:100753
[doi:10.1016/j.epidem.2024.100753](https://doi.org/10.1016/j.epidem.2024.100753)
 9. Xu H[‡], Zou K[‡], Dent J, Wiens KE, Malembaka EB, Bwire G, Welo PO, Hampton LM, Azman AS, **Lee EC**[†] (2024) Enhanced cholera surveillance as a tool for improving vaccination campaign efficiency. *Nature Medicine*. 30:1104-1110
[doi:10.1038/s41591-024-02852-8](https://doi.org/10.1038/s41591-024-02852-8)
 10. Malembaka EB, Bugeme PM, Hutchins C, Xu H, Dent J, Demby MN, Gallandat K, Saidi JM, Rumedeka BB, Itongwa M, Tsiwedi-Tsilabia E, Kitoga F, Bodisa-Matamu T, Kavunga-Membo H, Bengheya J, Kulondwa JC, Debes AK, Taty N, **Lee EC**, Lunguya O, Lessler J, Leung DT, Cumming O, Okitayemba PW, Mukadi-Bamuleka D, Knee J, Azman AS (2024) Effectiveness of one dose of killed oral cholera vaccine in an endemic community in the Democratic Republic of Congo: A matched case-control study. *Lancet Infectious Diseases*. 24(5):514-522
[doi:10.1016/S1473-3099\(23\)00742-9](https://doi.org/10.1016/S1473-3099(23)00742-9)
 11. Howerton E, Contamin L, Mullany LC, Qin M, Reich NG, Bents S, Borchering RK, Jung SM, Loo SL, Smith CP, Levander J, Kerr J, Espino J, van Panhuis WG, Hochheiser H, Galanti M, Yamana T, Pei S, Shaman J, Rainwater-Lovett K, Kinsey M, Tallaksen K, Wilson S, Shin L, Lemaitre JC, Kaminsky J, Dent J, **Lee EC**, McKee C, Hill A, Karlen D, Chinazzi M, Davis JT, Mu K, Xiong X, Pastore y Piontti, Vespignani A, Rosenstrom ET, Ivy JS, Mayorga ME, Swann JL, Espana G, Cavany S, Moore S, Perkins A, Hladsih T, Pillai A, Toh KB, Longini Jr I, Chen S, Paul R, Janies D, Thill JC, Bouchnita A, Bi K, Lachmann M, Fox S, Meyers LA, UT COVID-19 Modeling Consortium, Srivastava A, Porebski P, Venkatramanan S, Adiga A, Lewis B, Klahn B, Outten J, Hurt B, Chen J, Mortveit H, Wilson A, Marathe M, Hoops S, Bhattacharya P, Machi D, Cadwell BL, Healy JM, Slayton RB, Johansson MA, Biggerstaff M, Truelove S, Runge MC, Shea K, Viboud C, Lessler J (2023) Informing pandemic response in the face of uncertainty. An evaluation of the U.S. COVID-19 Scenario Modeling Hub. *Nature Communications*. 14(1):7260
[doi:10.1038/s41467-023-42680-x](https://doi.org/10.1038/s41467-023-42680-x)
 12. Wiens KE, Xu H, Zou K, Mwaba J, Lessler J, Malembaka EB, Demby M, Bwire G, Qadri F, **Lee EC**, Azman AS (2023) Estimating the proportion of clinically suspected cholera cases that are true *Vibrio cholerae* infections: A systematic review and meta-analysis. *PLOS Medicine*. 20(9):e1004286
[doi:10.1371/journal.pmed.1004286](https://doi.org/10.1371/journal.pmed.1004286)
 13. Sikder M, Deshpande A, Hegde ST, Malembaka EB, Gallandat K, Reiner RC, Lessler J, **Lee EC**, Azman AS (2023) Water, Sanitation, and Cholera in Sub-Saharan Africa. *Environmental Science and Technology*. 57(28):10147-10490
[doi:10.1021/acs.est.3c01317](https://doi.org/10.1021/acs.est.3c01317)
 14. Boru W[‡], Xiao S[‡], Amoth P, Kareko D, Langat D, Were I, Ali M, Sack DA, **Lee EC**[‡], Debes AK[‡] (2023) Prioritizing interventions for cholera control in Kenya, 2015-2020. *PLOS Neglected Tropical Diseases*. 17(5):e0010928
[doi:10.1371/journal.pntd.0010928](https://doi.org/10.1371/journal.pntd.0010928)

15. Wohl S, **Lee EC**, DiPrete BL, Lessler J (2023) Sample size calculations for variant surveillance in the presence of biological and systematic biases. *Cell Reports Medicine*. 4(5):101022
[doi:10.1016/j.xcrm.2023.101022](https://doi.org/10.1016/j.xcrm.2023.101022)
16. Kang B, Goldlust S, **Lee EC**, Hughes J, Bansal S, Haran M (2023) Spatial distribution and determinants of childhood vaccination refusal in the United States. *Vaccine*. 40(20):3189-3195
[doi:10.1016/j.vaccine.2023.04.019](https://doi.org/10.1016/j.vaccine.2023.04.019)
17. Borchering RK, Mullany LC, Howerton E, Chinazzi M, Smith CP, Qin M, Reich NG, Contamin L, Levander J, Kerr J, Espino J, Hochheiser H, Lovett K, Kinsey M, Tallaksen K, Wilson S, Shin L, Lemaitre JC, Dent Hulse J, Kaminsky J, **Lee EC**, Davis JT, Mu K, Xiong X, Pastore y Piontti A, Vespignani A, Srivastava A, Porebski P, Venkatramanan S, Adiga A, Lewis B, Klahn B, Outten J, Hurt B, Chen J, Mortveit H, Wilson A, Marathe M, Hoops S, Bhattacharya P, Machi D, Chen S, Paul R, Janies D, Thill J, Galanti M, Yamana T, Pei S, Shaman J, Espana G, Cavany S, Moore S, Perkins A, Healy JM, Slayton RB, Johansson MA, Biggerstaff M, Shea K, Truelove SA, Runge MC, Viboud C, Lessler J (2023) Impact of SARS-CoV-2 vaccination of children ages 5-11 years on COVID-19 disease burden and resilience to new variants in the United States, November 2021-March 2022: a multi-model study. *Lancet Regional Health - Americas*. 17:100398
[doi:10.1016/j.lana.2022.100398](https://doi.org/10.1016/j.lana.2022.100398)
18. Nixon K, Jindal S, Parker F, Reich NG, Ghobadi K, **Lee EC**, Truelove SA, Gardner LM (2022) An evaluation of prospective COVID-19 modeling in the US: From data to science translation. *Lancet Digital Health*. 4:e738-47
[doi:10.1016/S2589-7500\(22\)00148-0](https://doi.org/10.1016/S2589-7500(22)00148-0)
19. Nixon K, Jindal S, Parker F, Reich NG, Ghobadi K, **Lee EC**, Truelove SA, Gardner LM (2022) Real-time COVID-19 forecasting: a perspective on the challenges and opportunities of model performance and translation. *Lancet Digital Health*. 4(10):E699-E701
[doi:10.1016/S2589-7500\(22\)00167-4](https://doi.org/10.1016/S2589-7500(22)00167-4)
20. Truelove S[‡], Smith CP[‡], Qin M, Mullany LC, Borchering RK, Lessler J, Shea K, Howerton E, Contamin L, Levander J, Salerno J, van Panhuis W, Hochheiser H, Kinsey M, Tallaksen K, Wilson S, Shin L, Rainwater-Lovett K, Lemaitre JC, Dent J, Kaminsky J, **Lee EC**, Perez-Saez J, Hill A, Karlen D, Chinazzi M, Davis JT, Mu K, Xiong X, Pastore y Piontti A, Vespignani A, Srivastava A, Porebski P, Venkatramanan S, Adiga A, Lewis B, Klahn B, Outten J, Schlitt J, Corbett P, Tellionis PA, Wang L, Peddireddy AS, Hurt B, Chen J, Vullikanti A, Marathe M, Hoops S, Bhattacharya P, Machi D, Chen S, Paul R, Janies D, Thill J, Galanti M, Yamana T, Pei S, Shaman J, Reich NG, Healy JM, Slayton RB, Biggerstaff M, Johansson MA, Runge MC, Viboud C (2022) Projected resurgence of COVID-19 in the United States in July-December 2021 resulting from the increased transmissibility of the Delta variant and faltering vaccination. *eLife*. 11:e73584
[doi:10.7554/eLife.73584](https://doi.org/10.7554/eLife.73584)
21. Cramer EY, Huang Y, Wang Y, Ray EL, Cornell M, Bracher J, Brennen A, Castero Rivadeneira AJ, Gerding A, Gneiting T, House KH, Jayawardena D, Hannan Kanji A, Khandelwal A, Le K, Muhlemann A, Niemi J, Stark A, Shah A, Wattanchit N, Zorn M, Reich NG, **US COVID-19 Forecast Hub Consortium** (2022) The United States COVID-19 Forecast Hub dataset. *Scientific Data*. 9:462
[doi:10.1038/s41597-022-01517-w](https://doi.org/10.1038/s41597-022-01517-w)
22. Zheng Q, Luquero FJ, Ciglenecki I, Wamala JF, Abubakar A, Welo P, Hussen M, Wossen M, Yennan S, Keita A, Lessler J, Azman AS, **Lee EC**[†] (2022) Cholera outbreaks in sub-Saharan Africa during 2010-2019: A descriptive analysis. *International Journal of Infectious Diseases*. 122:215-221
[doi:10.1016/j.ijid.2022.05.039](https://doi.org/10.1016/j.ijid.2022.05.039)
23. **Lee EC**, Arab A, Colizza V, Bansal S (2022) Spatial aggregation choice in the era of digital and administrative surveillance data. *PLOS Digital Health*. 1(6):e0000039
[doi:10.1371/journal.pdig.0000039](https://doi.org/10.1371/journal.pdig.0000039)

24. Perez-Saez J, **Lee EC**, Wada NI, Alqunaibet AM, Almudarra SS, Alsukait RF, Dong D, Zhang Y, El Saharty S, Herbst CH, Lessler J (2022) Effect of non-pharmaceutical interventions in the early phase of the COVID-19 epidemic in Saudi Arabia. *PLOS Global Public Health*. 2(5):e0000237
[doi:10.1371/journal.pgph.0000237](https://doi.org/10.1371/journal.pgph.0000237)
25. Perez-Saez J, Lessler J, **Lee EC**, Luquero FJ, Malembaka EB, Finger F, Langa JP, Zaitchik B, Azman AS (2022) The seasonality of cholera in sub-Saharan Africa. *Lancet Global Health*. 10(6):e831-e839
[doi:10.1016/S2214-109X\(22\)00007-9](https://doi.org/10.1016/S2214-109X(22)00007-9)
26. Cramer EY, Ray EL, Lopez VK, Bracher J, **COVID-19 Forecast Hub Consortium**, Johansson M, Biggerstaff M, Reich NG (2022) Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the US. *PNAS*. 119(15):e2113561119
[doi:10.1073/pnas.2113561119](https://doi.org/10.1073/pnas.2113561119)
27. Redd AD, Peetluk L, Peer AD, Jarrett B, Hanrahan C, Schwartz S, Rao A, Jaffe A, Jones C, Lutz C, McKee C, Patel E, Rosen G, Desany HC, McKay H, Muschelli J, Andersen K, Link MA, Wada N, Baral P, Young R, Boon D, Grabowski MK, Gurley ES, **the Novel Coronavirus Research Compendium Team** (2021) Curating the evidence about COVID-19 for frontline public health and clinical care: The Novel Coronavirus Research Compendium. *Public Health Reports*. 137(2):197-202
[doi:10.1177/00333549211058732](https://doi.org/10.1177/00333549211058732)
28. Rosensteel GE, **Lee EC**, Colizza V, Bansal S (2021) Characterizing an epidemiological geography of the United States: influenza as a case study. *American Journal of Epidemiology*.
[doi:10.1101/2021.02.24.21252361](https://doi.org/10.1101/2021.02.24.21252361)
29. Hegde ST[‡], **Lee EC**[‡], Khan AI, Lauer SA, Islam MT, Bhuiyan TR, Lessler J, Azman AS, Qadri F, Gurley ES (2021) Clinical cholera surveillance sensitivity in Bangladesh and implications for large-scale disease control. *The Journal of Infectious Diseases*. 224(12 Suppl 2):S725-S731
[doi:10.1093/infdis/jiab418](https://doi.org/10.1093/infdis/jiab418)
30. Yang B, Huang AT, Garcia-Carreras B, Hart WE, Staid A, Hitchings MDT, **Lee EC**, Howe CJ, Grantz KH, Wesolowski A, Lemaitre JC, Rattigan SM, Moreno C, Borgert BA, Dale C, Quigley NE, Cummings A, McLorg A, LoMonaco K, Schlossberg S, Barron-Kraus DW, Shrock HC, UFCOVID Interventions Team, Lessler J, Laird CD, Cummings DAT (2021) Effect of specific non-pharmaceutical intervention policies on SARS-CoV-2 transmission in the counties of the United States. *Nature Communications*. 12(3560)
[doi:10.1038/s41467-021-23865-8](https://doi.org/10.1038/s41467-021-23865-8)
31. Borchering RK[‡], Viboud C[‡], Howerton E, Smith CP, Truelove S, Runge MC, Reich NG, Contamin L, Levander J, Salerno J, van Panuis W, Kinsey M, Tallaksen K, Obrecht RF, Asher L, Costello C, Kelbaugh M, Wilson S, Shin L, Gallagher ME, Mullaney LC, Rainwater-Lovett K, Lemaitre JC, Dent J, Grantz KH, Kaminsky J, Lauer SA, **Lee EC**, Meredith HR, Perez-Saez J, Keegan LT, Karlen D, Chinazzi M, David JT, Mu K, Xiong X, Pastore y Piontti A, Vespignani A, Srivastava A, Porebski P, Venkatramanan S, Adiga A, Lewis B, Klahn B, Outten J, Schlitt J, Corbett P, Telionis PA, Wang L, Peddireddy AS, Hurt B, Chen J, Vullikanti A, Marathe M, Healy JM, Slayton RB, Biggerstaff M, Johansson MA, Shea K, Lessler J (2021) Modeling of future COVID-19 cases, hospitalizations, and deaths by vaccination and nonpharmaceutical interventions scenarios - United States, April-September 2021. *Morbidity and Mortality Weekly Report*. 5 May 2021
[doi:10.15585/mmwr.mm7019e3](https://doi.org/10.15585/mmwr.mm7019e3)
32. Grantz KH[‡], **Lee EC**[‡], D'Agostino McGowan L, Lee KH, Metcalf CJE, Gurley ES, Lessler J (2021) Maximizing and evaluating the impact of test-trace-isolate programs: A modeling study. *PLoS Medicine*. 18(4):e1003585
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33. Meredith HR, Arehart E, Grantz KH, Beams A, Sheets T, Nelson R, Zhang Y, Vinik RG, Barfuss D, Pettit JC, McCaffrey K, Dunn AC, Good M, Frattaroli S, Samore MH, Lessler J, **Lee EC**, Keegan LT

- (2021) Coordinated strategy for a modeling-based decision support tool for COVID-19, Utah, USA. *Emerging Infectious Diseases*. 27(5)
doi:10.3201/eid2705.203075
34. Lemaitre JC[‡], Grantz KH[‡], Kaminsky J[‡], Meredith HR[‡], Truelove SA[‡], Lauer SA, Keegan LT, Shah S, Wills J, Kaminsky K, Perez-Saez J, Lessler J, **Lee EC**[†] (2021) A scenario modeling pipeline for COVID-19 emergency planning. *Scientific Reports*. 11(7534)
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 35. **Lee EC**[‡], Wada NI[‡], Grabowski MK, Gurley ES, Lessler J (2020) The engines of SARS-CoV-2 spread. *Science*. 370(6515):406-407
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 36. Zheng Q[‡], Jones FK[‡], Leavitt SV[‡], Ung L[‡], Labrique AB, Peters DH, **Lee EC**, Azman AS, HIT-COVID Collaboration (2020) Health Intervention Tracking for COVID-19 (HIT-COVID): a global database. *Scientific Data*. 7(286)
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 37. **Lee EC**[‡], Chao DL[‡], Lemaitre J[‡], Matrajt L[‡], Pasetto D, Perez-Saez J, Finger F, Rinaldo A, Sugimoto JD, Halloran ME, Longini Jr IM, Ternier R, Vissieres K, Azman AS, Lessler J, Ivers LC (2020) Achieving coordinated national immunity and cholera elimination in Haiti through vaccination. *Lancet Global Health*. 8(8):e1081-e1089
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 38. **Lee EC**[†], Azman AS, Kaminsky J, Moore SM, McKay HS, Lessler J (2019) The projected impact of geographic targeting of oral cholera vaccination in sub-Saharan Africa. *PLoS Medicine*. 16(12):e1003003
doi:10.1371/journal.pmed.1003003
 39. Reyes O, **Lee EC**, Sah P, Viboud C, Chandra S, Bansal S (2018) Spatial-temporal patterns and diffusion of the 1918 influenza pandemic in British India. *American Journal of Epidemiology*. 187(12):2550-2560
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 40. **Lee EC**[†], Arab A, Goldlust SM, Viboud C, Grenfell BT, Bansal S (2018) Deploying digital health data to optimize influenza surveillance at national and local scales. *PLoS Computational Biology*. 14(3):e1006020
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 41. Lessler J[‡], Moore SM[‡], Luquero FJ, Grais R, Henkens M, Mengel M, Dunoyer J, M'bangombe M, **Lee EC**, Djingarey MH, Sudre B, Fraser RSM, McKay HS, Abubakar A, Perea W, Legros D, Azman AS (2018) Mapping the burden of cholera in sub-Saharan Africa and implications for control: an analysis of data across geographical scales. *The Lancet*. 391(10133):1908-1915
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 42. **Lee EC**, Kelly MR, Ochocki BM, Akinwumi SM, Hamre KES, Tien JH, Eisenberg MC (2017) Model distinguishability and inference robustness in mechanisms of cholera transmission and loss of immunity. *Journal of Theoretical Biology*. 420:68-81
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 43. Ewing A^{*‡}, **Lee EC**[‡], Viboud C, Bansal S (2017) Contact, travel, and transmission: The impact of the winter holidays on influenza transmission in the United States. *The Journal of Infectious Diseases*. 215(5):732-739
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 44. **Lee EC**, Asher JM, Goldlust S, Kraemer JD, Lawson AB, Bansal S (2016) Mind the scales: Harnessing spatial big data for infectious disease surveillance and inference. *The Journal of Infectious Diseases*. 214(Suppl 4)
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Reports, Articles, or Editorials not Peer Reviewed

1. **Lee EC**, Azman AS (2024) Systematic testing in cholera surveillance enhances vaccine impact and cost-effectiveness. *Nature Medicine*. 30:950-951
[doi:10.1038/s41591-024-02907-w](https://doi.org/10.1038/s41591-024-02907-w)
2. Rosser EN, Park S, Peeples LM, Dutta R, Aldos L, Lee KH, Grantz KH, Gurley ES, Marx MA, **Lee EC** (2022) Process and Outcome Evaluation of the California Contact Tracing Support Initiative (CCTSI). *report to Public Health Institute*.
3. Lessler J, Moore S, Azman AS, Lee E, McKay HS (2018) Who is at risk for cholera in Africa?. *Biomedical Science Journal for Teens*.
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5. Lal B, Wilson A, Jonas S, **Lee EC**, Richards A, Pena V (2012) An Outcome Evaluation of the National Institutes of Health (NIH) Director's Pioneer Award (NDPA) Program, FY 2004-2006. *IDA Document*.
6. Berger KM, Pinard W, Frankel MS, Lee E (2009) Workforce Development: Preparing the Next Generation for Infectious Disease Threats. *American Association for the Advancement of Science*.

Preprints

1. Perez-Saez J[‡], Malembaka EB[‡], Bouman JA[‡], Bugeme PM, Hutchins C, Jackson J, Tsiwedi-Tsilabia E, Dent J, Demby MN, Gallandat K, Saidi JM, Rumedeka BB, Itongwa M, Kitoga F, Bodisa-Matamu T, Cumming O, Kavunga-Membo H, Bengheya J, Kulondwa JC, Dighe A, Clutter C, **Lee EC**, Lunguya O, Lessler J, Leung DT, Okitayemba PW, Mukadi-Bamuleka D, Knee J, Azman AS (in prep) Impact of mass oral cholera vaccination in an endemic area of the Democratic Republic of the Congo: a surveillance-based counterfactual modeling analysis. .
2. Park S, Rosser EN, Grantz KH, Dutta R, Aldos L, Lee KH, Peeples LM, Gurley ES, Marx MA, **Lee EC** (in prep) Stigma and privacy were significant barriers to COVID-19 contact elicitation in the presence of community trust. .
3. Aldos LF, **Lee EC**, Rosser EN, Park S, Dutta R, Lee KH, Grantz KH, Peeples LM, Gurley ES, Marx MA (in review) Methods of evaluating public health programs in emergencies: Innovations and lessons learned from the evaluation of a rapidly implemented, dynamic COVID-19 contact tracing program in 2021. .
4. Park S, Grantz KH, Lee KH, Rosser EN, Aldos LF, Dutta R, Peeples LM, Gurley ES, Marx MA, **Lee EC** (in review) Completeness and timeliness of a contact tracing intervention during the COVID-19 pandemic: an outcome evaluation of the California Contact Tracing Support Initiative. .
5. Rosser EN, Marx MA, Park S, Aldos LF, Dutta R, Grantz KH, Lee KH, Peeples LM, Gurley ES, **Lee EC** (in review) Lessons in implementing complex interventions in a public health emergency: A process evaluation of the California Contact Tracing Support Initiative. .
6. Kim JH, Duong M, **Lee EC**, Zheng Q, Azman AS, Russell A, Kim JH (in review) Impact of oral cholera vaccine outbreak response immunization in sub-Saharan Africa, 2010–2020: a modeling analysis. *MedRxiv*.
[doi:10.1101/2025.11.06.25339715](https://doi.org/10.1101/2025.11.06.25339715)

7. Zheng Q, Azman AS, **Lee EC**, Shade R, Charnley GEC, Finger F, Kamadjeu R, Zaitchik B, Perez-Saez J (in review) The association between cholera and weather: a systematic review and direction-of-effect meta-analysis. *MedRxiv*.
[doi:10.1101/2025.11.04.25339479v1](https://doi.org/10.1101/2025.11.04.25339479v1)
8. Miller MH, Hilbert SM, Rosser EN, Sinko L, **Lee EC**, Wiens KE (in review) Understanding influences of care-seeking behaviors for diarrheal illnesses: A qualitative meta-synthesis. *MedRxiv*.
[doi:10.1101/2025.07.08.25331122](https://doi.org/10.1101/2025.07.08.25331122)
9. Zheng Q, DePencier R, Demby MN, Azman AS, **Lee EC** (in review) Cholera surveillance time series in Africa between 2010 and 2023. *Verixiv*.
[doi:10.12688/verixiv.1061.1](https://doi.org/10.12688/verixiv.1061.1)
10. D'Agostino McGowan L, **Lee EC**, Grantz KH, Kucirka LM, Gurley ES, Lessler J (preprint) Testing out of quarantine. *medRxiv*.
[doi:10.1101/2021.01.29.21250764](https://doi.org/10.1101/2021.01.29.21250764)

Letters

1. Global Task Force on Cholera Control Epidemiology and Laboratory Working Groups (2025) Beyond acute watery diarrhoea: new cholera surveillance guidance. *Lancet Infectious Diseases*.(26 Feb 2025)
[doi:10.1016/S1473-3099\(25\)00143-4](https://doi.org/10.1016/S1473-3099(25)00143-4)
2. **Lee EC**, Ternier R, Lessler J, Azman AS, Ivers LC (2020) Cholera in Haiti - Authors reply. *Lancet Global Health*. 8(12):E1470-E1471
[doi:10.1016/S2214-109X\(20\)30446-0](https://doi.org/10.1016/S2214-109X(20)30446-0)

Practice Activities

(illustrative selection)

Presentations to policy-makers and other stakeholders

January 2025	<i>Cholera epidemiology with a prioritization lens, global OCV stakeholders, Geneva, Switzerland.</i>
January 2025	<i>Strategic modeling for targeting preventive OCV campaigns, global OCV stakeholders, Geneva, Switzerland.</i>
May 2024	<i>GTFCC methods and process for the identification of PAMIs, WHO GTFCC Surveillance Working Group, Cairo, Egypt.</i>
May 2023	<i>Identification of priority areas for multisectoral interventions, WHO GTFCC Surveillance Working Group, Maputo, Mozambique.</i>
April 2022	<i>Revised GTFCC framework for the identification of priority areas for interventions, WHO GTFCC Surveillance Working Group, Annecy, France.</i>
December 2020	<i>Prioritization of oral cholera vaccine use in hotspots, WHO GTFCC Oral Cholera Vaccine Working Group, Virtual.</i>
October 2020	<i>Global cholera database and country profiles, WHO Global Task Force on Cholera Control, Virtual.</i>
January 2019	<i>Modeling Mass OCV Campaigns in Haiti: Prospects for Elimination, Haiti Ministère de la Santé Publique et de la Population, Port-au-Prince, Haiti.</i>
December 2018	<i>Mapping the burden of cholera for operational use, WHO-AFRO and GTFCC regional partners, Nairobi, Kenya.</i>
December 2018	<i>Discussion on research for operational agendas, WHO-AFRO and GTFCC regional partners, Nairobi, Kenya.</i>

Consultations with policy-makers and other stakeholders

- 2018-present *Technical consultation and epidemiologic support, Global Task Force for Cholera Control (GTFCC):* Our JHU-based team provides epidemiologic support to the WHO-led GTFCC. I manage the development of a global cholera database and have been involved in specific consultations on guidelines for prioritizing areas for cholera control, modeling the impact of cholera vaccination campaigns, and forecasting the global demand of oral cholera vaccine. I also serve on the GTFCC Epidemiology Working Group Technical Committee, which leads the development of guidance related to global cholera surveillance and epidemiology..
- 2020-2023 *Priority areas for multisectoral intervention subgroup lead, GTFCC Surveillance Working Group:* I led the subgroup to develop global guidance on the identification of cholera hotspots and the prioritization of interventions for country cholera control planning. We produced two complementary guidance documents with accompanying Excel-based tools and a user guide that supports countries in the prioritization of multisectoral interventions for cholera control and elimination based on epidemiologic and other risk factors..
- 2020-2022 *Support for COVID-19 response, Los Angeles County Department of Public Health:* I led an effort to provide epidemiological forecasts and analysis of COVID-19 surveillance data and projections for Los Angeles county..
- 2020-2021 *Development of guidance for prioritization of global oral cholera vaccine stockpiles, GTFCC and Gavi:* I contributed to guidance on how to evaluate requests for oral cholera vaccine for preventive vaccination campaigns from the global stockpile. Vaccine supplies and supplemental funding for administering campaigns are limited, and this guidance will provide eligibility information on potential geographic campaign targets..
- 2020-2021 *Support for COVID-19 response, California Department of Public Health:* I co-managed a team that provides epidemiological forecasts and analysis of COVID-19 surveillance data and projections for the state of California. Our team provided biweekly surveillance reports with scenario projections, analyses of intervention effectiveness, estimates of ongoing transmission, and forecasts to the California Department of Public Health for over a year from the start of the COVID-19 pandemic..
- 2019-2021 *Technical support in cholera control planning, Ethiopian Public Health Institute (EPHI), WHO Ethiopia Office, WHO Headquarters:* I provided technical support to EPHI in the identification of geographical cholera hotspots in the context of national cholera control planning. In collaboration with colleagues at the World Health Organization, I led workshops and meetings on how to identify cholera hotspots and performed data analysis and visualization in collaboration with EPHI colleagues.
- 2018-2019 *Support of Tanzania Ministry of Health in cholera control planning, Tanzania Ministry of Health:* I worked with JHSPH collaborators to provide technical support to the Tanzania Ministry of Health in the identification of priority areas for intervention with cholera control. My primary role was to discuss quantitative measures for prioritize cholera burden hotspots and develop an interactive web application for exploration of surveillance data and these quantitative measures.
- 2018-2019 *Modeling for Gavi VIS Oral Cholera Vaccine Investment Case, Gavi:* Our JHU-based team projected the impact of oral cholera vaccine campaigns on human health over the next 30 years if Gavi decides to make an investment in the vaccine.

Software

1. Perez-Saez J, Kaminsky J, Zheng Q, Zou K, Fang P, Alam CA, Lee EC (2024) [cholera-mapping-pipeline](#).
2. Giles JR, Wohl S, Lee EC (2023) [phylosamp](#).
3. Lee EC, Zou K, Alam C (2021) [ocvImpact](#).

4. Kaminsky J, **Lee EC**, Kaminsky K, Lemaitre JC, Grantz KH, Meredith HR, Truelove SA, Shah S, Lauer SA, Lessler J, Keegan LT, Wills J, Hulse JD (2020) [COVIDScenarioPipeline](#).
5. D'Agostino McGowan L, Grantz KH, **Lee EC**, Lessler J (2020) [tti - test trace isolate](#).
6. D'Agostino McGowan L, Grantz KH, **Lee EC**, Lessler J (2020) [Contact Tracing Evaluation and Strategic Support Application \(ConTESSA\)](#).

Teaching

Advisees

Madiha Shafquat, ScM in Epidemiology (thesis co-mentor)	2022-2024
Louie Gold, MHS (thesis co-mentor)	2020-2021
Anne Ewing, BA (thesis co-mentor)	2014-2016
Riaa Dutta, MPH (capstone advisor)	2021-2022
Sophie Frank, MSPH in Health, Behavior, and Society (thesis reader)	2023
Johanna Heller, MHS (thesis reader)	2022-2023
Hanmeng Xu, MHS (thesis reader)	2021

Classroom Instruction

2022	21st International Vaccinology Course, International Vaccine Institute	Faculty
2021	Health Systems Program Seminar on COVID-19 Modeling and Policy, JHBSPH	Guest Lecturer
2020	Measuring and Maximizing Impact of COVID-19 Contact Tracing, Coursera	Co-Instructor
2017	Modeling Biological Populations, Georgetown University 20 students, 1 lectures	Guest Lecturer
2016-2017	Foundations in Biology, Georgetown University 50+ students, 2 lectures	Guest Lecturer
2016	Gateway - Biology of Global Health, Georgetown University 20 students, 2 lectures	Guest Lecturer
2015	Modeling Biological Populations, Georgetown University 20 students	Teaching Fellow
2014	Pandemic Exercise, Georgetown University Summer High School Medical Institute	Instructor

Research Grant Participation

Ongoing

Wellcome Trust

10/2023-9/2028

Andrew Azman (PI)

The Impact and Effectiveness of Different Oral Cholera Vaccine Regimens Uvira, DR Congo

The proposed work will enhance cholera surveillance in Uvira, DR Congo and estimate the impact of mass oral cholera vaccination campaigns on laboratory-confirmed cholera incidence and mortality and seroincidence of *Vibrio cholerae* infection.

Role: Co-Investigator

Bill and Melinda Gates Foundation Andrew Azman (PI) Cholera Burden & Transmission Modeling The proposed work aims to characterize the global epidemiology and burden of cholera, develop optimal strategies for the rational use of oral cholera vaccine (OCV), and support both ongoing and future global cholera control activities. Role: Co-Investigator	10/2022-9/2025 INV-044865
Vaccine Impact Modelling Consortium Elizabeth C. Lee (PI) Vaccine Impact Modeling for Cholera We will perform analytics and modeling to inform Gavi, WHO, and GTFCC technical guidance related to the use and distribution of the global cholera vaccine stockpile. Role: Principal Investigator	9/2022-8/2025
Completed	
Bill and Melinda Gates Foundation Andrew Azman (PI) Cholera Burden & Transmission Modeling The proposed work aims to characterize the global epidemiology and burden of cholera, develop optimal strategies for the rational use of oral cholera vaccine (OCV), and support both ongoing and future global cholera control activities. Role: Co-Investigator	8/2019-12/2022 INV-002667
Vaccine Impact Modelling Consortium Elizabeth C. Lee (PI) Vaccine Impact Modeling for Cholera This work will project the impact of oral cholera vaccination campaigns in cholera-affected countries globally, in order to inform vaccine investment strategies at Gavi and the Bill and Melinda Gates Foundation. Role: Principal Investigator	7/2020-11/2022 P66050
Gavi Andrew Azman (PI) Field Testing of Oral Cholera Vaccine Preventive Campaign Targeting Guidance The proposed work provided direct support to countries, Gavi, and the Global Task Force on Cholera Control to develop guidance on how to optimally target oral cholera vaccination campaigns to cholera hotspots using mixed methods such as theoretical modeling and country technical support. Role: Co-Investigator	8/2019-11/2022 M&E 8914 8 20 A15
Los Angeles County Department of Public Health Elizabeth Lee (PI) Modeling of the SARS-CoV-2 Pandemic in Los Angeles County to Estimate Future Demand for Healthcare This project provided epidemiological technical support and modeling outputs to the Los Angeles County Department of Public Health for COVID-19 response and situational awareness. Role: Principal Investigator	5/2021-11/2022 140099/22032293
Public Health Institute Elizabeth C. Lee (PI) Program Evaluation of the California Contact Tracing Support Initiative	5/2021-4/2022

This project evaluated the process and impact of a clinically-integrated COVID-19 contact tracing intervention implemented in select Kaiser Permanente facilities in California.

Role: Principal Investigator

AR03078

National Science Foundation

5/2021-4/2022

Shaun Truelove (PI)

RAPID: Projecting Possible Scenarios of COVID-19 in the United States

This project supports model contributions to and coordination of the COVID-19 Scenario Modeling Hub (SMH), an effort that aims to provide decision makers with a form of “situational awareness” under multiple plausible futures by serving as a central, harmonized source of timely scenario modeling projections.

Role: Co-Investigator

2127976

US Departments of Homeland Security and Health and Human Services

4/2020-12/2021

Justin Lessler (PI)

Modeling support for COVID-19 response

This subcontract to the JHU Applied Physics Lab proposed to implement and improve a model for scenario planning and forecasting the spread of COVID-19 in the United States in support of FEMA and US DHHS COVID-19 response efforts.

Role: Co-Investigator

75A50121C0003

California Department of Technology

4/2020-10/2020

Justin Lessler (PI)

Modeling support for COVID-19 response

This project provided epidemiological technical support and modeling outputs to the California Department of Health for COVID-19 response and situational awareness.

Role: Co-Investigator

19-13081

Academic Service

Committee Memberships

2018	Award Sub-Committee, Annual Conference International Society for Disease Surveillance	Member
2017	Board of Directors International Society for Disease Surveillance	Student Rep
2016-2017	Student Research Grants Program, Medical Center Graduate Student Organization Georgetown University	Program Officer
2016-2017	Course Grants Program, Medical Center Graduate Stu- dent Organization Georgetown University	Program Officer
2016-2017	Biology Organization of Graduate Students Georgetown University	Co-President
2015-2016	Travel Grants Program, Medical Center Graduate Stu- dent Organization Georgetown University	Grant Officer
2014-2015	Graduate Student Organization Georgetown University	Treasurer
2013-2014	Graduate Student Organization Georgetown University	VP Student Groups

2013	Provost's Student Advisory Committee Georgetown University	Member
2012-2013	Graduate School Standing Committee on Academic Integrity Georgetown University	Member
2012-2013	Graduate Student Organization Georgetown University	Program Rep

Other Departmental Service

2013 Organized an event on careers for biologists beyond academia at Georgetown University

Presentations

Scientific Meetings

1. Perez-Saez J, Zheng Q, Kaminsky J, Zou K, Demby MN, Landau D, DePencier R, Langa JP, Welo P, Lessler J, Datta A, Azman AS, **Lee EC** (2024) Mapping a decade of cholera burden in Africa, 2011 to 2020. GTFCC Surveillance Working Group. (*Oral*)
2. **Lee EC**, Charnley G, Zheng Q, Perez-Saez J, Azman AS (2023) Effective use of oral cholera vaccine in outbreak settings. American Society of Tropical Medicine and Hygiene. (*Oral*)
3. Xu H, Zou K, Dent J, Wiens KE, Malembaka EB, Hampton LM, Azman AS, **Lee EC** (2023) Enhanced cholera surveillance as a tool for improving vaccination campaign efficiency. American Society of Tropical Medicine and Hygiene. (*Oral*)
4. **Lee EC**, Perez-Saez JP, Zheng Q, Azman AS (2023) Optimizing the targeting of OCV doses: Insights from modeling. GTFCC Oral Cholera Vaccine Working Group Research Day. (*Oral*)
5. **Lee EC**, Hegde ST, Lauer S, Khan AI, Lessler J, Islam T, Rahman T, Azman AS, Qadri F, Gurley ES (2020) Identifying gaps in cholera surveillance in Bangladesh. 15th Asian Conference on Diarrhoeal Disease and Nutrition. (*Poster*)
6. **Lee EC**, Chao DL, Lemaitre J, Matrajt L, Pasetto D, Perez-Saez J, Finger F, Rinaldo A, Sugimoto JD, Halloran ME, Longini Jr. IM, Ternier R, Vissieres K, Azman AS, Lessler J, Ivers LC (2019) Achieving coordinated national immunity and cholera elimination in Haiti through vaccination. US-Japan Joint Conference on Cholera and Other Bacterial Enteric Infections. (*Oral*)
7. **Lee EC**, Azman AS, Kaminsky J, Moore SM, McKay HS, Lessler J (2019) The projected impact of geographic targeting of oral cholera vaccination in sub-Saharan Africa. *Epidemics*⁷. (*Oral*)
8. **Lee EC**, Chao DL, Lemaitre J, Matrajt L, Pasetto D, Perez-Saez J, Finger F, Rinaldo A, Sugimoto JD, Halloran ME, Longini Jr. IM, Ternier R, Vissieres K, Azman AS, Lessler J, Ivers LC (2019) Achieving coordinated national immunity and cholera elimination in Haiti through vaccination. American Society of Tropical Medicine and Hygiene. (*Poster*)
9. **Lee EC**, Azman AS, Kaminsky J, Moore SM, McKay HS, Lessler J (2019) Projecting the health impact of oral cholera vaccine introduction in Africa. US-Japan Joint Conference on Cholera and Other Bacterial Enteric Infections. (*Poster*)

Session Chair

2018 Bacteriology: Cholera American Society for Tropical Medicine and Hygiene

Invited Seminars

June 2024	Enhanced cholera surveillance as a tool for improving vaccination campaign efficiency Cholera State of the Science Symposium, Harvard Global Health Institute.	Cambridge US
March 2024	Counseling required: the fragile partnership between disease surveillance and disease prevention and control Institute of Global Health, University of Geneva.	Geneva CH
February 2024	Counseling required: the fragile partnership between disease surveillance and disease prevention and control London School of Hygiene and Tropical Medicine.	London UK
September 2022	Using real-world data and modeling to assess and enhance vaccine impact Korea National Institute of Health.	Cheongju SK
September 2021	COVID-19 seasonality - current understanding and relevance to decision-making World Meteorological Organization COVID-19 Task Team Roundtable.	Virtual
August 2020	Epidemiological modeling for decision support in the COVID-19 pandemic. Bioinformatics and Computational Biology program, University of Minnesota Rochester.	Virtual
May 2020	From Science to Scenario Modeling. Johns Hopkins Bloomberg School of Public Health.	Virtual
June 2019	Applications of geographical mapping to global cholera control policy. Institut Pierre Louis d'Épidémiologie et de Santé Publique.	Paris FR
August 2018	The impact of winter holidays on influenza transmission. Centre for Tropical Medicine, Oxford University Clinical Research Unit.	HCMC VN
February 2017	Characterizing the spatio-temporal dynamics of influenza-like illness in high volume medical claims data Viral Disease Branch, Walter Reed Army Institute of Research.	Silver Spring MD

Additional Information

Research Objectives

I research the spatio-temporal dynamics and control of infectious diseases to advance effective and evidence-based guidance on disease control practice and policy.

Other Skills

Native fluency in English; Professional working proficiency in French

Keywords

infectious disease dynamics, infectious disease epidemiology, vaccine impact, targeting and prioritization of disease control, cholera, influenza, COVID-19, disease mapping, statistical modeling, mathematical modeling, science policy.