

Eben Kenah

Assistant Professor
Department of Biostatistics
University of Florida

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Education

- 03/2008 ScD, Epidemiology
Harvard School of Public Health (Boston, MA)
Advisor: James M. Robins
- 03/2008 MS, Biostatistics
Harvard School of Public Health (Boston, MA)
- 06/2001 BA, Special Concentration in Poverty and Health in the Developing World
Magna cum laude with highest honors in concentration
Harvard University (Cambridge, MA)

Positions

- 04/2012 - present Assistant Professor
- 09/2011 - 03/2012 Research Assistant Professor
Department of Biostatistics and Emerging Pathogens Institute
University of Florida (Gainesville, FL)
- 09/2008 - 08/2011 Postdoctoral fellow
Departments of Global Health and Biostatistics
University of Washington (Seattle, WA)
- 11/2006 - 08/2008 Research Assistant, Models of Infectious Disease Agent Study (MIDAS)
Department of Epidemiology
Harvard School of Public Health (Boston, MA)
- 08/2005 - 06/2006 Biostatistical consultant
ICDDR,B (Dhaka, Bangladesh)

Other Skills and Experience

Programming: R, Python, C, LaTeX

Second languages: Bengali (fluent speaking, reading, and writing)

Field epidemiology

- Fulbaria, Bangladesh (6-7/2002): Helped conduct, translate, and transcribe field interviews for a study of visceral leishmaniasis.
- Dhaka and Pabna, Bangladesh (6-9/2001): Helped translate protocols, questionnaires, and consent forms from English into Bengali; helped develop a database and train data entry staff; and reviewed collection and processing of biological samples for case-control and dosimetry studies of arsenicosis.

Honors

10/2014 UF PPHP Dean's Citation Paper Award for the Department of Biostatistics
06/2001 Thomas T. Hoopes Prize for senior thesis *Poverty and the English Language*
06/2001 Harvard Center for International Development Senior Thesis Prize

Funding

09/2014 – 06/2019 NIH U54 GM111274 (PI: M. Elizabeth Halloran)
Center for Inference & Dynamics of Infectious Diseases
Co-investigator on Project 1 and co-lead of Project 3

06/2011 – 07/2015 NIH K99/RO0 AI095302
Survival Analysis and Regression in Infectious Disease Epidemiology
Principal investigator

09/2008 - 06/2011 NIH F32 GM085945
Linking Transmission Models and Data Analysis in Infectious Disease Epidemiology
Principal investigator

11/2006 - 08/2008 NIH U01 GM076497 (PI: Marc Lipsitch)
Models of Infectious Disease Agent Study (MIDAS)
Research assistant

09/2001 – 08/2005 NIH T32 AI007535 (PI: George Seage)
Epidemiology of Infectious Diseases and Biodefense
Pre-doctoral fellow

Teaching

UF College of Public Health and Health Professions (Gainesville, FL)

- Applied Survival Analysis (PHC 6937/STA 6177)
Fall, 2014; Spring and Fall, 2013
- Advanced Survival Analysis (STA 7179)
Spring, 2014
- Large Sample Theory (PHC 7066)
Spring, 2012
- PhD committee chair:
Yushuf Sharker (Biostatistics)
Samson Ghebremariam (Biostatistics)
- PhD committee member:
Yifan Zhu (Biostatistics, 06/2015)
Alexander Kirpich (Biostatistics, 06/2015)
Ya Meng (Biostatistics, 06/2015)
- MS committee member:
Yi Zhang (Biostatistics, 05/2013)

ICDDR,B (Dhaka, Bangladesh)

- Workshop on causality (11/2012)
- Workshop on statistical models and probability (11-12/2010)
- Biostatistics and epidemiology course for senior researchers (3-4/2008)
- Advanced epidemiology course for BRAC University MPH students (10/2005)

Publications

Refereed journal articles

1. **E. Kenah** (2015). Semiparametric relative-risk regression for infectious disease transmission data. *Journal of the American Statistical Association* 110(509): 313-325. PMID: PMC4489164
2. Y. Yang, Y. Zhang, L. Fang, M. E. Halloran, M. Ma, S. Liang, **E. Kenah**, T. Britton, E. Chen, J. Hu, F. Tang, W. Cao, Z. Feng, and I. M. Longini, Jr. (2015). Household transmissibility of avian influenza A(H7N9) virus, China, February to May 2013 and October 2013 to March 2014. *Eurosurveillance* 20(10): 21056. PMID: PMC4404303
3. Y. Yang, M. E. Halloran, Y. Chen, and **E. Kenah** (2014). A pathway EM algorithm for estimating vaccine efficacy with a non-monotone validation set. *Biometrics* 70(3): 568–578. PMID: PMC4209209
4. J. D Sugimoto, A. A. Kroepke, **E. Kenah**, M. E. Halloran, F. Chowdhury, A. I. Khan, R. C. LaRocque, Y. Yang, E. T. Ryan, F. Qadri, S. B. Calderwood, J. B. Harris, and I. M. Longini, Jr. (2014). Household transmission of *Vibrio cholerae* in Bangladesh. *PLoS Neglected Tropical Diseases* 8(11): e3314. PMID: PMC4238997
5. S. Islam, **E. Kenah**, M. A. Bhuiyan, K. M. Rahman, B. Goodhew, C. M. Ghalib, M. M. Zahid, M. Ozaki, M. W. Rahman, R. Haque, S. P. Luby, J. H. Maguire, D. Martin, C. Bern (2013). Clinical and immunological aspects of post-kala-azar dermal leishmaniasis in Bangladesh. *American Journal of Tropical Medicine and Hygiene* 89(2): 345-353. PMID: PMC3741258
6. **E. Kenah** (2013). Nonparametric survival analysis of infectious disease data. *Journal of the Royal Statistical Society, Series B.* 75(2): 277-303. PMID: PMC3681432
7. S. Rahman, M. H. Huque, **E. Kenah**, M. Agboatwalla, and S. P. Luby (2013). Effect of recent diarrhoeal episodes on risk of pneumonia in children under the age of 5 years in Karachi, Pakistan. *International Journal of Epidemiology* 42(1): 194-200. Free article: <http://ije.oxfordjournals.org/content/42/1/194.long>
8. M. A. Rahman, M. J. Hossain, S. Sultana, N. Homaira, S. U. Khan, M. Rahman, E. S. Gurley, P. E. Rollin, M. K. Lo, J. A. Comer, L. Lowe, P. A. Rota, T. G. Ksiazek, **E. Kenah**, Y. Sharker, and S. P. Luby (2012). Date palm sap linked to Nipah virus outbreak in Bangladesh, 2008. *Vector-Borne Zoonotic Diseases* 12(1): 65-72.
9. **E. Kenah**, D. L. Chao, L. Matrajt, M. E. Halloran, and I. M. Longini, Jr. (2011). The global transmission and control of influenza. *PLoS ONE* 6(5): e19515. PMID: PMC3089626
10. **E. Kenah** and J. C. Miller (2011). Epidemic percolation networks, epidemic outcomes, and interventions. *Interdisciplinary Perspectives on Infectious Disease* 2011: 543520. PMID: PMC3062991
11. **E. Kenah** (2011). Contact intervals, survival analysis of epidemic data, and estimation of R_0 . *Biostatistics* 12(3): 548-566. PMID: PMC3114649

12. A. K. Halder, E. Gurley, A. Naheed, S. K. Shah, A. Brooks, S. El Arifeen, H. M. S. Sazzad, **E. Kenah**, and S. Luby (2009). Causes of early childhood death in urban Dhaka, Bangladesh. *PloS One* 4(12): e8145. PMID: PMC2779865
13. K. M. Rahman, S. Islam, M. W. Rahman, **E. Kenah**, C. M. Galive, M. M. Zahid, J. Maguire, M. Rahman, R. Haque, S. P. Luby, and C. Bern (2010). Increasing incidence of post kala-azar dermal leishmaniasis in a population-based study in Bangladesh. *Clinical Infectious Diseases* 50(1): 73-76. Free article: <http://cid.oxfordjournals.org/content/50/1/73.long>
14. S. P. Luby, M. J. Hossain, E. S. Gurley, B.-N. Ahmed, S. Banu, S. U. Khan, N. Homaira, P. A. Rota, P. E. Rollin, J. A. Comer, **E. Kenah**, T. G. Ksiazek, M. Rahman (2009). Recurrent zoonotic transmission of Nipah virus into humans in Bangladesh, 2001-2007. *Emerging Infectious Diseases* 15(8): 1229-35. PMID: PMC2815955
15. Y. Yang, J. Sugimoto, M. E. Halloran, N. E. Basta, D. Chao, L. Matrajit, G. Potter, **E. Kenah**, and I. M. Longini (2009). Transmissibility and control of Novel Influenza A(H1N1) virus. *Science* 326(5953): 729-733. PMID: PMC2880578
16. E. Goldstein, K. Paur, C. Fraser, **E. Kenah**, J. Wallinga, and M. Lipsitch (2009). Reproductive numbers, epidemic spread, and control in a community of households. *Mathematical Biosciences* 221(1): 11-25. PMID: PMC2731010
17. S. P. Luby, M. Agboatwalla, A. Bowen, **E. Kenah**, Y. Sharker, R. M. Hoekstra (2009). Difficulties in maintaining improved handwashing behavior, Karachi, Pakistan. *American Journal of Tropical Medicine and Hygiene* 81(1): 140-5. Free article: <http://www.ajtmh.org/content/81/1/140.long>
18. **E. Kenah**, M. Lipsitch, and J.M. Robins (2008). Generation interval contraction and epidemic data analysis. *Mathematical Biosciences* 213(1): 71-9. PMID: PMC2365921
19. **E. Kenah** and J. M. Robins (2007). Network-based analysis of stochastic SIR epidemic models with random and proportionate mixing. *Journal of Theoretical Biology* 249(4): 706-22. PMID: PMC2186204
20. **E. Kenah** and J. M. Robins (2007). Second look at the spread of epidemics on networks. *Physical Review E* 76: 036113. PMID: PMC2215389
21. S. P. Luby, M. Rahman, M. J. Hossain, L. S. Blum, M. M. Husain, E. Gurley, R. Khan, B. N. Ahmed, S. Rahman, N. Nahar, **E. Kenah**, J. A. Comer, and T. G. Ksiazek (2006). Foodborne transmission of Nipah virus, Bangladesh. *Emerging Infectious Diseases* 12(12): 1888-94. PMID: PMC3291367
22. I.B. Ahluwalia, C. Bern, C. Costa, T. Akter, R. Chowdhury, M. Ali, D. Alam, **E. Kenah**, J. Amann, M. Islam, Y. Wagatsuma, R. Haque, R. F. Breiman, and J. H. Maguire (2003). Visceral leishmaniasis: consequences of a neglected disease in a Bangladeshi community. *American Journal of Tropical Medicine and Hygiene* 69(6): 624-8. Free article: <http://www.ajtmh.org/content/69/6/624.long>

Presentations

Invited

1. **E. Kenah**, T. Britton, M. E. Halloran, and I. M. Longini, Jr. (2014/05/10). Phylogenetics, within-host evolution, and who-infected-whom. *PANGEA Satellite Workshop on HIV Phylodynamics*: Tucson, AZ.
2. **E. Kenah**, M. E. Halloran, and I. M. Longini, Jr. (2012/06/04). Phylogenetic trees in the analysis of infectious disease data. *Symposium on MRSE: Collaboration for Community-Based Research*: Jacksonville, FL.

Contributed

1. **E. Kenah**, T. Britton, M. E. Halloran, and I. M. Longini, Jr. (2015/04/29). Phylogenetic algorithms for the analysis of infectious disease transmission data. *MIDAS Network Meeting*: Atlanta, GA.
2. **E. Kenah**, T. Britton, M. E. Halloran, and I. M. Longini, Jr. (2014/08/07). Phylogenetics, within-host evolution, and who-infected-whom. *Joint Statistical Meeting*: Boston, MA.
3. **E. Kenah**, T. Britton, M. E. Halloran, and I. M. Longini, Jr. (2013/11/20). Survival analysis, who-infected-whom, and phylogenetics in infectious disease epidemiology. *Epidemics 4 Conference*: Amsterdam, the Netherlands.
4. **E. Kenah**, T. Britton, M. E. Halloran, and I. M. Longini, Jr. (2013/11/12). Survival analysis, who-infected-whom, and phylogenetics in infectious disease epidemiology. *Design and Analysis of Infectious Disease Studies*: Mathematisches Forschungsinstitut Oberwolfach, Germany.
5. **E. Kenah**, T. Britton, M. E. Halloran, and I. M. Longini, Jr. (2013/05/06). Phylogenetics and who-infected-whom. *MIDAS Network Meeting*: Austin, TX.
6. **E. Kenah**, M. E. Halloran, and I. M. Longini, Jr. (2013/01/23). Phylogenetic trees in the analysis of transmission data. *RAPIDD-EPI Workshop on Survival Analysis and Phylogenetics in Infectious Disease Epidemiology*: Gainesville, FL.
7. **E. Kenah** (2012/12/22). Semiparametric regression for epidemic data. *International Conference on Statistical Data Mining*: Rajshahi, Bangladesh.
8. **E. Kenah**, M. E. Halloran, and I. M. Longini, Jr. (2012/06/07). Phylogenetic trees in the analysis of infectious disease data. *MIDAS Network Meeting*: Atlanta, GA.
9. **E. Kenah**, M. E. Halloran, and I. M. Longini, Jr. (2011/12/02). Phylogenetic trees in the analysis of infectious disease data. *Epidemics 3 Conference*: Boston, MA.
10. **E. Kenah** (2011/07/21). Nonparametric survival analysis of epidemic data. *International Conference on Industrial and Applied Mathematics*: Vancouver, Canada.
11. **E. Kenah** (2011/06/09). Nonparametric survival analysis of epidemic data. *MIDAS Network Meeting*: Atlanta, GA.

12. **E. Kenah** (2010/12/28). Nonparametric survival analysis of epidemic data. *DUSDAA Conference on Theory and Applications of Statistics*: Dhaka, Bangladesh.
13. **E. Kenah** (2010/05/06). Survival analysis of epidemic data. *MIDAS Network Meeting*: Washington, DC.
14. **E. Kenah** (2009/11/02). Survival analysis of epidemic data via infectious contact intervals. *Design and Analysis of Infectious Disease Studies*: Mathematisches Forschungsinstitut Oberwolfach, Germany.
15. **E. Kenah** (2008/10/22). Network-based targeting of interventions in stochastic SIR epidemic models. *DIMACS Working Group on Spatio-temporal and Network Modeling of Diseases III*: Tübingen, Germany.
16. **E. Kenah** (2008/04/11). The skeleton of an epidemic: understanding SIR models through networks. *MIDAS Network meeting*: Boston, MA.
17. **E. Kenah** (2008/03/21). The Achilles' heel of epidemics. *Jonathan Freeman Symposium on the Epidemiology of Infectious Diseases*: Boston, MA.
18. **E. Kenah** (2007/01/17). The skeleton of an epidemic: SIR epidemic models and semi-directed random networks. *MIDAS Network Meeting*: Boston, MA.

Posters

1. **E. Kenah** (2011/11/30). Semiparametric proportional-hazards regression for infectious disease data. *Epidemics 3 Conference*: Boston, MA.
2. **E. Kenah**, M. Lipsitch, and J. M. Robins (2007/03/09). Serial interval contraction during epidemics. *Jonathan Freeman Symposium on the Epidemiology of Infectious Diseases*: Boston, MA.

Seminars

1. **E. Kenah** (2015/08/11). Survival analysis and phylogenetics in infectious disease epidemiology. *University of Dhaka Institute of Statistical Research & Training Applied Statistics Weekly Seminar*: Dhaka, Bangladesh.
2. **E. Kenah** (2015/08/10). Survival analysis and phylogenetics in infectious disease epidemiology. *ICDDR,B Scientific Seminar*: Dhaka, Bangladesh.
3. **E. Kenah** (2009/09/24). Analysis of stochastic S(E)IR models via percolation on networks. *UW Networks Working Group*: Seattle, WA.
4. **E. Kenah** (2009/06/04). Survival analysis and epidemic data: serial intervals and beyond. *UW Biostatistics Department Seminar*: Seattle, WA.
5. **E. Kenah** (2009/04/22). Network-based targeting of vaccination in stochastic SIR epidemic models. *FHCRC Biostatistics and Biomathematics Seminar*: Seattle, WA.
6. **E. Kenah** and J. C. Miller (2007/07/30). Efficient vaccination in stochastic SIR models. *Los Alamos Mathematical Modeling and Analysis Student Program*: Los Alamos, NM.

Service to the Profession

Memberships

American Statistical Association	2012-present
ENAR (International Biometric Society)	2012-present

Workshop organizer

- *Survival Analysis and Phylogenetics in Infectious Disease Epidemiology*
January 23-24, 2013 (Reitz Union Hotel, University of Florida)
Supported by the UF Emerging Pathogens Institute and the Research and Policy in Infectious Disease Dynamics (RAPIDD) program at the NIH Fogarty International Center. Included 28 participants from the United States, the United Kingdom, the Netherlands, and Sweden.

Journal referee

American Journal of Epidemiology	Journal of Biological Dynamics
The American Statistician	Journal of Mathematical Biology
Biometrics	Journal of the Royal Society Interface
Biostatistics	Journal of Theoretical Biology
BMC Medicine	Lancet
Bulletin of Mathematical Biology	Mathematical Biosciences
Comp. & Math. Methods in Medicine	Pakistan Journal of Statistics
Epidemics	Physics Letters A
Epidemiologic Methods	PLoS Computational Biology
Influenza and Other Respiratory Viruses	PLoS ONE
JASA	Proceedings of the Royal Society B

References

Professor Ira M. Longini, Jr.

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Professor M. Elizabeth Halloran

Vaccine and Infectious Diseases Division,
Fred Hutchinson Cancer Research Center
Department of Biostatistics,
University of Washington

1100 Fairview Ave. N, Box 19024
Seattle, WA 98109-1024
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Professor Stephen P. Luby

Department of Medicine (Infectious Diseases)
and Center for Innovation in Global Health,
Stanford Medical School

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Professor James Robins

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Harvard School of Public Health

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Professor Marc Lipsitch

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Harvard School of Public Health

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