

Natalie Exner Dean

Curriculum Vitae

CONTACT INFORMATION

Department of Biostatistics
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EDUCATION

Ph.D. Biostatistics, Harvard University	2014
A.M. Biostatistics, Harvard University	2011
B.A. Mathematics/Statistics, Biology, Boston University, <i>summa cum laude</i>	2009

RESEARCH AND PROFESSIONAL EXPERIENCE

Assistant Professor, Department of Biostatistics, University of Florida, Gainesville, FL	2017–Present
Postdoctoral Associate, Department of Biostatistics, University of Florida, Gainesville, FL <i>Faculty Mentor:</i> Professor Ira M. Longini	2015–2017
External Statistical Consultant, HIV Department, World Health Organization, Geneva, Switzerland	2014–2015
Research Assistant, Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, MA <i>Faculty Mentor:</i> Professor Marcello Pagano	2009–2014
Student Researcher, Barbados Nutrition Study, Harvard Medical School, Boston, MA <i>Faculty Mentor:</i> Professor Janina Galler	2007–2009

TEACHING EXPERIENCE

Instructor, Department of Biostatistics, University of Florida <i>Course:</i> Intro to Biostatistics for health science and public health	2016
Instructor, Department of Biostatistics, Harvard University <i>Course:</i> Problem solving in advanced statistics	2012–2013

Teaching Assistant, Department of Biostatistics, Harvard University 2010–2013
Courses: Analysis of rates and proportions, Public health surveillance,
Quantitative methods for monitoring & evaluation, Introductory statistics for
medical research, Introduction to statistical methods

Tutor, Department of Biostatistics, Harvard University 2010–2013

PUBLICATIONS

Refereed Journal Articles

Wilder-Smith A, Longini I, Zuber P, Bärnighausen T, Edmunds WJ, **Dean NE**, Masseray-Spicher V, Benissa MR, Gessner BG (2017). The public health value of vaccines beyond efficacy: methods, measures and outcomes. *BMC Medicine* 15: 138.

Zhang Q, Sun K, Chinazzi M, Pastore-Piontti A, **Dean NE**, Rojas DP, Merler S, Mistry D, Poletti P, Rossi L, Bray M, Halloran ME, Longini IM, Vespignani A (2017). Spread of Zika virus in the Americas. *Proceedings of the National Academy of Sciences* 114(22): E4334-E4343.

Henao-Restrepo AM, Camacho A, Longini IM, Watson CH, Edmunds WJ, Egger M, Carroll MW, **Dean NE**, Doumbia M, Draguez B, Duraffour S, Enwere G, Grais R, Gunther S, Gsell PS, Hossmann S, Kondé MK, Kéïta S, Kone S, Kuisma E, Levine M, Mandal S, Mauget T, Norheim G, Rivreros X, Soumah A, Trelle S, Vicari AS, Røttingen J-A, Kieny MP (2017). Efficacy and effectiveness of an rVSV-vectored vaccine in preventing Ebola virus disease: final results from the Guinea ring vaccination, open-label, cluster-randomised trial (Ebola Ça Suffit!). *The Lancet* 389(10068): 505-518.

Mutenda N, Bukowski A, Nitschke AM, Nakanyala T, Hamunime N, Mekonen T, Tjituka F, Mwinga S, Mazibuko G, Mbirizi D, Sagwa E, **Dean N**, Jordan MR, Hong SY (2016). HIV Drug Resistance Early Warning Indicators in Main and Decentralized Outreach Antiretroviral Therapy Sites in Namibia. *PLoS ONE* 11(12): e0166649.

Merler S, Ajelli M, Fumanelli L, Parlamento S, Pastore Y Piontti, **Dean NE**, Putoto G, Carraro D, Longini IM, Halloran ME, Vespignani A (2016). Containing Ebola at the source with ring vaccination. *PLoS Neglected Tropical Diseases* 10(11): e0005093.

Ajelli M, Merler S, Fumanelli L, Pastore Y Piontti A, **Dean NE**, Longini IM, Halloran ME, Vespignani A (2016). Spatiotemporal dynamics of the Ebola epidemic in Guinea and implications for vaccination and disease elimination: a computational modeling analysis. *BMC Medicine* 14: 130.

Rojas DP, **Dean NE**, Yang Y, Kenah E, Quintero J, Tomasi S, Ramirez EL, Kelly Y, Castro C, Carrasquilla G, Halloran ME, Longini IM (2016). The epidemiology and transmissibility of Zika virus in Girardot and San Andres Island, Colombia, September 2015 to January 2016. *Eurosurveillance* 21(28): pii=30283.

Dean NE, Halloran ME, Yang Y, Longini IM (2016). Transmissibility and Pathogenicity of Ebola Virus: A Systematic Review and Meta-analysis of Household Secondary Attack Rate and Asymp-

tomatic Infection. *Clinical Infectious Diseases* 62(10): 1277-1286.

Fang LQ, Yang Y, Jiang JF, Yao H, Kargbo D, Li X, Jiang BG, Kargbo B, Tong YG, Wang YW, Liu K, Kamara A, Dafaie F, Kanu A, Jiang RR, Sun Y, Sun RX, Chen WJ, Ma M, **Dean NE**, Thomas H, Longini IM, Halloran ME, Cao WC (2016). Transmission Dynamics of Ebola Virus Disease and Intervention Effectiveness in Sierra Leone. *Proceedings of the National Academy of Sciences* 113(16): 4488-4493.

Dean NE, Pagano M (2015). Evaluating Confidence Interval Methods for Binomial Proportions in Clustered Surveys. *Journal of Survey Statistics and Methodology* 3(4): 484-503.

Henao-Restrepo A-M, Longini IM, Egger M, **Dean NE**, Edmunds WJ, Camacho A, Carroll MW, Doumbia M, Duraffour S, Enwere G, Grais R, Gunther S, Hossmann S, Kondé MK, Kone S, Kuisma E, Levine M, Mandal S, Norheim G, Riveros X, Soumah A, Trelle S, Vicari AS, Watson CH, Draguez B, Kéïta S, Røttingen J-A, Kieny M-P (2015). Efficacy and effectiveness of an rVSV-vectored vaccine expressing Ebola surface glycoprotein: interim results from the Guinea ring vaccination cluster-randomised trial. *The Lancet* 386(9996): 857-866. **International Society for Vaccines 2015 Paper of the Year.*

Ebola ça suffit ring vaccination trial consortium (coauthor **Dean NE**) (2015). The ring vaccination trial: a novel cluster randomised controlled trial design to evaluate vaccine efficacy and effectiveness during outbreaks, with special reference to Ebola. *British Medical Journal* 351: h3740.

Russo GS, Ferrucci AM, Miller CP, Dean EW, Strohhahn GW, **Dean NE**, Sharkey MS (2015). Factors associated with the transfer of pediatric patients with supracondylar humerus fractures to a level I pediatric trauma center. *The Journal of the Connecticut State Medical Society* 79(8): 461-466.

Galler JR, Bryce CP, Zichlin ML, Waber DP, **Exner N**, Fitzmaurice GM, Costa PT (2013). Malnutrition in the first year of life and personality at age 40. *Journal of Child Psychology and Psychiatry* 54(8): 911-919.

Galler JR, Bryce CP, Waber D, Hock RS, **Exner N**, Eaglesfield D, Fitzmaurice G, Harrison R (2010). Early childhood malnutrition predicts depressive symptoms at ages 11-17. *Journal of Child Psychology and Psychiatry* 51(7): 789-798.

Other Publications

World Health Organization (lead author **Dean NE**) (2017). Informing Vaccination Programs: A Guide to the Design and Conduct of Dengue Serosurveys.

Available at: http://www.who.int/immunization/research/development/dengue_serosurveys/en/

Dean NE, Vespignani A, Halloran ME, Longini IM, Halloran ME (2016). Zika virus: only a few small outbreaks likely to occur in the continental US. *The Conversation*.

Available at: <http://theconversation.com/zika-virus-only-a-few-small-outbreaks-likely-to-occur-in-the-continental-us-64719>

World Health Organization (coauthor **Dean NE**) (2016). Global report on early warning indicators of HIV drug resistance: Technical report.
Available at: <http://www.who.int/hiv/pub/drugresistance/ewi-hivdr-2016/en/>

Longini IM, Egger M, **Dean NE**, Edmunds WJ, Henao-Restrepo AM, on behalf of the study steering group (2015). Ebola vaccination – Authors’ reply. *The Lancet* 386(10012): 2480.

World Health Organization (coauthor **Dean NE**) (2014). HIV Drug Resistance Concept Note – Surveillance of HIV drug resistance in adults initiating antiretroviral therapy (pretreatment HIV drug resistance).
Available at: <http://www.who.int/hiv/topics/drugresistance/protocols/en/>

World Health Organization (coauthor **Dean NE**) (2014). HIV Drug Resistance Concept Note – Surveillance of HIV drug resistance in adults receiving antiretroviral therapy (acquired HIV drug resistance).
Available at: <http://www.who.int/hiv/topics/drugresistance/protocols/en/>

Exner NM (2014). Surveillance methods for monitoring HIV incidence and drug resistance. Ph.D. Thesis, Department of Biostatistics, Harvard University, Cambridge.

Software & Technical Tools

World Health Organization (developed by **Dean NE**) (2014). Excel-based sample size calculators to design pre-treatment HIV drug resistance (PDR) surveys.
Available at: <http://www.who.int/hiv/topics/drugresistance/protocols/en/>

World Health Organization (developed by **Dean NE**) (2014). Excel-based sample size calculators to design acquired HIV drug resistance (ADR) surveys.
Available at: <http://www.who.int/hiv/topics/drugresistance/protocols/en/>

World Health Organization (developed by **Dean NE**) (2014). Excel-based sample size calculators to design concurrent PDR and ADR surveys.
Available at: <http://www.who.int/hiv/topics/drugresistance/protocols/en/>

HONORS AND AWARDS

Travel Award Recipient, Women in Statistics and Data Science Conference, National Science Foundation	2016
Winner, Edward C. Bryant scholarship for an outstanding student in survey statistics, American Statistical Association	2013
Honorable Mention, Gertrude M. Cox scholarship for women students in statistics, American Statistical Association	2013
Recipient, Department of Biostatistics Certificate of Distinction in Teaching, Harvard University	2012
Overall and Student Winner, Modeling & Prediction RAB Poster Award, ENAR Spring Meeting, Washington DC	2012

Winner, John E. Alman Award in Statistics, Department of Mathematics & Statistics, Boston University	2009
Inductee, Phi Beta Kappa Society, Boston University	2009
College Scholar, College of Arts & Sciences, Boston University	2008
Distinguished Sophomore, College of Arts & Sciences, Boston University	2006

FUNDING

Methods for Evaluating Vaccine Efficacy, R37, NIAID/NIH	2015-Present
Dengue Vaccine Seroprevalence Surveys, WHO (Principal Investigator)	2016-2017
Design, Analysis, and Implementation of Ebola Vaccine Studies in West Africa, WHO	2015-2016
Accurate and Efficient Measures for HIV Incidence, R01, NIAID/NIH	2013-2014
Biostatistics/Epidemiology Training Grant in AIDS, T32, NIH	2009-2013
Summer Institute in Statistics & Modeling in Infectious Diseases Scholarship and Travel Award, University of Washington	2010
Trustee Scholarship (full-tuition merit-based scholarship), Boston University	2005-2009
Corporate National Merit Scholarship, Osram Sylvania	2005-2009
Undergraduate Research Opportunities Program Grant, Boston University	2008

PRESENTATIONS

Conference Invited Seminars

“Risk estimates of microcephaly and other birth defects from prospective Zika cohorts.” MIDAS Network Meeting, Reston, VA	2016
“Evaluating Ebola vaccine Efficacy under Outbreak Conditions using a Ring Vaccination Trial Design.” ENAR Spring Meeting, Austin, TX	2016

Conference Contributed Seminars

“Design Considerations for Vaccine Efficacy Trials in Outbreak Settings.” Joint Statistical Meetings, Chicago, IL	2016
“Analysis of an Ebola Vaccine Trial using a Ring Vaccination Design in Guinea, West Africa.” Epidemics 5, Clearwater, FL	2015
“Practical and Statistical Challenges in Developing an HIV Drug Resistance Surveillance Protocol.” ENAR Spring Meeting, Baltimore, MD	2014

“A Comparison of Methods for Estimating Confidence Intervals for Proportions in Clustered Surveys.” Joint Statistical Meetings, Montreal, Canada 2013

“Adapting Shannon’s Entropy to Strengthen Relationship between Time since HIV-1 Infection and Within-Host Viral Diversity.” ENAR Spring Meeting, Orlando, FL 2013

Conference Posters

“Guidelines for Vaccine Efficacy Trials during Public Health Emergencies.” MIDAS Network Meeting, Atlanta, GA 2017

“Incorporating HIV-1 Genetic Diversity into an Algorithm for Incidence Estimation.” ENAR Spring Meeting, Washington, DC 2012

“The NEO PI-R Personality Inventory in a Barbadian Cohort: Effects of Early Childhood Malnutrition on Personality at 35-40 Years.” Society for Research in Child Development Biennial Meeting, Denver, CO 2009

Departmental and Campus Talks

“Design Considerations for Vaccine Efficacy Trials in Outbreak Settings.”
- University of Florida CSQUID Working Group 2017

“Design, Analysis, and Interpretation of Ebola Vaccine Efficacy Trials in West Africa.”
- University of Florida CSQUID Working Group 2015

“HIV Incidence Estimation using Cross-Sectional Measures of Within-Host Viral Diversity.”
- Harvard Department of Biostatistics HIV Working Group 2012
- Harvard School of Public Health Toast PhD Working Group 2012
- Harvard Department of Biostatistics Quantitative Working Group 2012

Other Presentations

“Progress on WHO Blueprint Work.” (*On behalf of Action Point 1 Team*)
- WHO Blueprint Face-to-Face Meeting, Annecy, France 2017

“Our Community, Our Health: Everything You Wanted to Know About Zika”
- HealthStreet interactive town hall, University of Florida, Gainesville, FL 2017

“Recommended Guidelines for Dengue Serosurveillance.” (*On behalf of WHO*)
- WHO Immunization and vaccines related implementation research advisory committee meeting (IVIR-AC), Annecy, France 2017

“Outline of Vaccine Trial Designs in Outbreak Settings.”
(*On behalf of Action Point 1 Team*)
- WHO Blueprint Face-to-Face Meeting, Washington, DC 2016

“Surveillance of Pre-Treatment and Acquired HIV Drug Resistance.”

(*On behalf of WHO and HIVResNet*)

- HIV Drug Resistance Surveillance Consultant Training, Geneva, Switzerland 2015
- Workshop on Methodology for the Surveillance of HIV Drug Resistance in the Caribbean, Port of Spain, Trinidad and Tobago 2014
- Technical Consultation on HIV Drug Resistance Surveillance in Latin America and the Caribbean Region, Brasilia, Brazil 2013
- National HIV/STI Programme Managers Meeting of the Western Pacific Region, Kunming, China 2013

PROFESSIONAL SERVICE

Reviewer, *AIDS Research and Human Retroviruses*; *Biometrics*; *BMC Public Health*; *BMJ Open*; *Clinical Trials*; *Emerging Infectious Diseases*; *PLOS Neglected Tropical Diseases*; *Statistics in Medicine*

- Organizer, CSQUID Working Group, University of Florida 2015–Present
- Session Moderator, AAAS Annual Meeting, Boston, MA 2017
- Judge, Florida Statewide Graduate Student Research Symposium, Gainesville, FL 2016
- Judge, Three Minute Thesis (3MT), University of Florida 2016
- Judge, Graduate Student Research Day, University of Florida 2015
- Session Chair, ENAR Spring Meeting, Orlando, FL 2013
- Co-Coordinator, HIV Working Group Seminar Series, Department of Biostatistics, Harvard University 2012–2013
- Chair, Department of Biostatistics Student Committee, Harvard University 2012–2013
- Member, Department of Biostatistics Student Committee, Harvard University 2009–2012
- Coordinator, McGoldrick Fellowship Reading Group, Harvard University 2011–2012

PROFESSIONAL AFFILIATIONS

- American Statistical Association 2012–Present

SKILLS

Computing: R, SAS, Stata, L^AT_EX, knitr, Excel
Languages: English (Native), French (Basic Conversational)

COMMUNITY SERVICE

- Alumni Admission Representative, Phillips Academy Andover 2016–Present

Volunteer, Boys and Girls Club of Alachua County

2015–Present

Volunteer Judge, Regional Science and Engineering Fair, Alachua County

2015–2016

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