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CURRICULUM VITAE

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Education

University of Minnesota, Minneapolis, Minnesota: Ph.D., Biometry/Biomathematics- 1977

University of Florida, Gainesville, Florida: M.S., Statistics/Operations Research- 1973

University of Florida, Gainesville, Florida: B.S., Engineering/Operations Research- 1971

Research and/or Professional Experience

- 7/11- present Full Professor, Department of Biostatistics, Colleges of Public Health and Health Professions, and Medicine, University of Florida, Gainesville, FL
- 7/11- present Director, Center for Statistics and Quantitative Infectious Diseases (CSQUID), Emerging Pathogens Institute, University of Florida, Gainesville, FL
- 10/14 – present High-level Consultant to the World Health Organization, Geneva, Switzerland
- 1/06- 6/11 Full Professor, Vaccine and Infectious Disease Division, Fred Hutchinson Cancer Research Center, Seattle, WA.;
Full Professor of Biostatistics, Department of Biostatistics, School of Public Health, University of Washington, Seattle, WA.
- 1/06 – 6/11 Director, Mathematical Modeling for HIV/STD Research, Center for AIDS Research, University of Washington, Seattle, WA.
- 7/06 – 7/07 Ross Prentice Professor of Biostatistics, Department of Biostatistics, School of Public Health and Community Medicine, University of Washington, Seattle, WA.

9/88- 12/05	Full Professor of Biostatistics (9/92- 12/05), Associate Professor (9/88- 8/92), Department of Biostatistics, Rollins School of Public Health, Emory University, Atlanta, Georgia
1/93- 7/93	Visiting Fellow, Isaac Newton Institute for Mathematical Sciences, University of Cambridge, Cambridge, England
8/84- 8/88	Assistant Professor of Biometry, Department of Statistics and Biometry, Emory University, Atlanta, Georgia
9/82- 7/84	Assistant Research Scientist in Epidemiology, Department of Epidemiology, University of Michigan, Ann Arbor, Michigan
9/82- 6/83	Visiting Assistant Professor of Statistics, Department of Statistics, University of Michigan, Ann Arbor, Michigan
1/80- 06/82	Postdoctoral Research Scholar in Biometry and Epidemiology, Department of Epidemiology, University of Michigan, Ann Arbor, Michigan
8/77- 12/79	Assistant Professor of Statistics, Department of Information and Systems, Universidad del Valle, Cali, Colombia, South America
8/77- 12/79	Postdoctoral Associate, International Center for Medical Research and Training, Cali, Colombia, South America

Principal Areas of Interest

Biostatistics, stochastic processes, infectious disease epidemiology, vaccine trials

Publications in Peer Review Literature

1. Hodgson, T.J., K.E. Kilpatrick, and I.M. Longini: An integer quadratic programming approach to scheduling multispecialty clinics," *AIIE Transactions*, **9**, 69-74 (1977).
2. Longini, I.M., Ackerman, E. and Elveback, L.R.: An optimization model for influenza A epidemics. *Mathematical Biosciences* **38**,141-157 (1978).
3. Longini, I.M.: A chain binomial model of endemicity. *Mathematical Biosciences* **50**, 85-93 (1980).
4. Longini, I.M. and Koopman, J.S.: Household and community transmission parameters from final distributions of infections in households. *Biometrics* **38**, 115-126 (1982).
5. Longini, I.M., Koopman, J., Monto, A.S. and Fox, J.P.: Estimating household and community transmission parameters for influenza. *American Journal of Epidemiology* **115**, 736-751 (1982).
6. Longini, I.M., Koopman, J. and Monto, A.S.: Estimation procedures for transmission parameters from influenza epidemics: Use of serological data. *Voprosy Virusologii*, **No. 2**, 176-181 (1983). (In Russian.)

7. Longini, I.M.: Models of epidemics and endemicity in genetically variable host populations. *Journal of Mathematical Biology* **17**, 289-304 (1983).
8. Monto, A.S., Koopman, J.S., Longini, I.M. and Isaacson, R.E.: The Tecumseh Study. XII. Enteric agents in the community. *Journal of Infectious Diseases* **148**, 284-291 (1983).
9. Longini, I.M., Monto, A.S. and Koopman, J.S.: Statistical procedures for estimating the community probability of illness in family studies: Rhinovirus and influenza. *International Journal of Epidemiology* **13**, 99-106 (1984).
10. Longini, I.M., Higgins, M.W., Hinton, P.C., Moll, P.P. and Keller, J.R.: Environmental and genetic sources of aggregation of blood pressure in Tecumseh, Michigan. *American Journal of Epidemiology* **120**, 131-144 (1984).
11. Higgins, M.W. and Longini, I.M.: Discussion: The Tecumseh Community Health Study, in *Genetic Epidemiology of Coronary Heart Disease* (eds. D.C. Rao, R.C. Elston, L.H. Kuller, M. Feinleib, C. Carter, R. Havlik) Alan Liss, NY, 43-45 (1984).
12. Longini, I.M., Seaholm, S.K., Ackerman, E., Koopman, J.S. and Monto, A.S.: Simulation studies of influenza epidemics: Assessment of parameter estimation and sensitivity. *International Journal of Epidemiology* **13**, 496-501 (1984).
13. Longini, I.M., Higgins, M.W., Hinton, P.C., Moll, P.P. and Keller, J.R.: Genetic and environmental sources of aggregation of body mass in Tecumseh, Michigan. *Human Biology* **56**, 733-757 (1984).
14. Longini, I.M.: Models of the interaction of host genotypes and infectious disease. *Lecture Notes in Biomathematics* **57** (ed. V. Capasso). Springer-Verlag, New York, 158-163 (1985).
15. Monto, A.S., Koopman, J.S. and Longini, I.M.: The Tecumseh study of illness. XII. Influenza infection and disease, 1976-1981. *American Journal of Epidemiology* **121**, 811-822 (1985).
16. Rvachev, L.A. and Longini, I.M.: A mathematical model for the global spread of influenza. *Mathematical Biosciences*, 75:3 22 (1985).
17. Longini, I.M.: Modeling influenza epidemics, in *Options for the Control of Influenza, UCLA Symposia on Molecular and Cellular Biology, New Series, Volume 36* (eds. A.P. Kendal and P.A. Patriarca) Alan Liss, NY, 89-105 (1986).
18. Longini, I.M., Fine P.E.M. and Thacker, S.B.: Predicting the global spread of new infectious agents. *American Journal of Epidemiology* **123**, 383-391 (1986).
19. Longini, I.M.: The discrete-time general epidemic model: a synthesis. *Mathematical Biosciences* **81**, 19-41 (1986).
20. Vasil'eva, V.I., Rvachev, L.A., Belova, G.A., Mironav, G.A., Rvachev, L.L., Shashkov, V.A., Donovan, D., Fine, P., Longini, I. and Fraser, D.: Fundamentals of software support for an automatic control system for fast-spreading pandemics. *Programmirovaniye* **3**, 57-70 (1987). (In Russian.)
21. Gomez, H., Koopman, J.S., Addy, C.L., Zarate, M.L., Vaca, M.A., Longini, I.M., *et al.*: Dengue epidemics on the pacific coast of Mexico. *International Journal of Epidemiology* **17**, 178-186 (1988).

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24. Longini, I.M. and Monto, A.S.: Efficacy of virucidal nasal tissue in interrupting familial transmission of respiratory agents: a field trial in Tecumseh, Michigan. *American Journal of Epidemiology* **128**, 639-644 (1988).
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29. Koopman, J.S., Monto, A.S. and Longini, I.M.: The Tecumseh study XVI. Family and community sources of rotavirus infection. *American Journal of Epidemiology* **130**, 760-768 (1989).
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32. Flanders, W.D. and Longini, I.M.: Estimating benefits of screening from observational studies. *Statistics in Medicine* **9**, 969-980 (1990).
33. Longini, I.M.: Modeling the decline of CD⁴ T-lymphocyte counts in HIV-infected individuals. Letter to the Editor. *Journal of Acquired Immune Deficiency Syndromes* **9**, 930-931 (1990).
34. Longini, I.M., Haber, M.J. and Halloran, M.E.: Direct and indirect effects of vaccines: A note on the estimation of vaccine efficacy from outbreaks of acute infectious agents. *Boletin Medico Del Hospital Infantil de Mexico* **47**, 516-519 (1990). (In Spanish.)
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47. Longini, I.M., Clark, W.S. and Karon, J.: The effect of routine use of therapy on the clinical course of human immunodeficiency virus (HIV) infection in a population-based cohort. *American Journal of Epidemiology* **137**, 1229-1240 (1993).
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53. Longini, I.M.: Discussion of paper of Mollison D., Isham, V. and Grenfell, B. Epidemics: models and data. *Journal of the Royal Statistical Society A* **157**, 134-135 (1994).
54. Satten, G.A. and Longini, I.M.: Estimation of incidence of HIV infection using cross-sectional marker surveys. *Biometrics* **50**, 675-688 (1994).
55. Jacquez, J.A., Koopman, J.S., Simon, C.P. and Longini, I.M.: The role of primary infection in the epidemics of HIV infection in gay cohorts. *Journal of Acquired Immune Deficiency Syndromes* **7**, 1169-1184 (1994).
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67. Halloran, M.E., Longini, I.M. and Struchiner, C.J.: Estimability and interpretation of vaccine efficacy using frailty mixing models. *American Journal of Epidemiology* **144**, 83-97 (1996).
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93. Halloran, M.E., Longini, I.M., Gaglani, M., Piedra, P.A., Chu, H., Herschler, G.B. and Glezen, W.P.: Estimating efficacy of trivalent, cold-adapted, influenza virus vaccine (CAIV-T) against influenza A (H1N1) and B using surveillance cultures. *American Journal of Epidemiology* **158**, 305-311 (2003).
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Manuscripts Submitted or in Preparation (partial list)

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2. Henao-Restrepo AM, Longini IM, et al. High efficacy of rVSV-ZEBOV-GP Ebola vaccine using the ring vaccination strategy in the control of an Ebola outbreak in the Democratic Republic of Congo: An example of integration of research into epidemic response. (Under review).
3. Ajelli M, Chinazzi M, Gsell, Pierre-Stéphane, Merler S, Camacho, Anton, Eggo, Rosalind M., et al. Guiding vaccine efficacy trial design during emergencies: a computational platform for exploring transmission models and vaccine trial design simulations. (Submitted).
4. Longini IM, et al. Vaccination Strategies for Ebola in the DRC, *New England Journal of Medicine* (in press).

Books

Halloran, M.E., Longini, I.M. and Struchiner, C.J.: *The Design and Analysis of Vaccine Studies*. Springer, New York, 387 pp. (2009).

Longini, I.M.: *Stochastic Processes for Biostatistics* (in process).

Erdős number: 4

Monographs, Book Chapters, Commentaries, Non-peer-review Articles

Longini, I.M. and Cuervo de Mesa, A.S.: "Lectures on Applied Stochastic Processes", Cali: Universidad del Valle (1978) pp. 175. (In Spanish.)

Longini, I.M.: "Notes on Time Series Analysis", Cali: Universidad del Valle (1979) pp. 47. (In Spanish and English.)

Longini, I.M. and Addy, C.: Report to the Global Epidemic Intelligence Service: "Analysis of Dengue Transmission in Mexico" (1987) pp. 56.

Longini, I.M.: Chain Binomial Models in *The Encyclopedia of Biostatistics*, **Volume 1**, (eds. P. Armitage and T. Colton), Wiley, NY, 593- 597 (1998).

Longini, I.M.: Invited commentary on C. P. Farrington, M. N. Kanaan and H. J. Gay: "Estimation of the basic reproductive number for infectious diseases from age-stratified serological survey data." *Appl. Statist.* **50**: 288-289 (2001).

Longini, I.M. (one of 28 signatories) : Ebola vaccine trial in Guinea. *Lancet* (letter) (2014) <http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2815%2960656-0/fulltext>

Longini IM, Egger M, Dean NE, Edmunds WJ, Henao-Restrepo AM: Ebola vaccination – Authors' reply. *Lancet* **386**: 2480 (2015).

Perspective: Eliminating Cholera Transmission in Haiti. *New England Journal of Medicine*. DOI: 10.1056/NEJMp1614104 (2016).

Shapiro J, Dean NE, Madewell ZJ, Yang Y, Halloran ME, Longini IM. Efficacy estimates for various COVID-19 vaccines: What we know from the literature and reports. *MedRxiv* (2021) doi: <https://doi.org/10.1101/2021.05.20.21257461>

Book Reviews

Longini IM: *Spatial Aspects of Influenza Epidemics*. Cliff, A.D., Hagget, R. and Ord, J.K., Pion Limited, London, 1986: in *Mathematical Biosciences* **89**, 237-239 (1988).

AIDS Epidemiology: A Quantitative Approach. Brookmeyer, R. and Gail, M.H., Oxford University Press, New York, 1994: in *Science* **265**, 1602-1603 (1994).

Service

Member of the Data Safety Monitoring Board for an open label post licensure trial to evaluate the safety and immunogenicity of indigenously manufactured killed bivalent (O1 and O139) whole cell oral cholera vaccine (Shanchol™), International Vaccine Institute.

Independent Statistician to the Data Safety and Monitoring Board for the Monitored Emergency Use of Unregistered and Investigational Interventions (MEURI) for access to investigational therapeutics on an individual patient basis for treatment of Ebola disease.

Member of the Scientific Steering Committee for the WHO International COVID-19 Solidarity Vaccine Efficacy Trial.

Awards and Honors

CDC Statistical Science Award "Best Theoretical Paper" published in 1994. Satten, G.A. and Longini, I.M.: Estimation of incidence of HIV infection using cross-sectional marker surveys. *Biometrics* **50**, 675-688 (1994).

CDC James H. Nakano Citation "for an outstanding scientific paper published in 1994." Mastro, T.D., Satten, G.A., Nopkesorn, T., Sangkharomya, S. and Longini, I.M.: Probability of female-to-male transmission of HIV-1 in Thailand. *Lancet* **343**, 204-207 (1994).

Howard M. Temin Award in Epidemiology for Scientific Excellence in the Fight Against HIV/AIDS (1995) for the article: Jacquez, J.A., Koopman, J.S., Simon, C.P. and Longini, I.M.: The role of primary infection in the epidemics of HIV infection in gay cohorts. *Journal of AIDS* **7**, 1169-1184 (1994).

Elected Fellow of the American Statistical Association, 1995

CDC Statistical Science Award "Best Applied Paper" published in 1996. Satten, G.A. and Longini, I.M.: "Markov chains with measurement error: estimating the "true" course of a marker of HIV disease progression (with discussion)". *Applied Statistics* **45**, 275-309 (1996).

Elected Fellow of the American Association for the Advancement of Science (AAAS), 2012

International Society for Vaccines: “Paper of the Year 2015.” Henao-Restrepo, A-M, Longini IM, Egger M, Dean NE *et al.*: Efficacy of a recombinant live VSV-vectored vaccine expressing Ebola surface glycoprotein: Interim results from the Guinea ring vaccination cluster-randomized trial. *The Lancet*, **38**, 857–866 (2015). <http://www.isv-online.org/menu-annual-congress/previos-papers/2015-paper-of-the-months/171-paper-of-the-year-2015>

Science Magazine, one of the top 10 “Breakthrough of the Year” for 2015. Guinea Ebola ring vaccination trial: <http://www.sciencemag.org/news/2015/12/and-science-s-breakthrough-year>

Aspen Institute Italia Award for scientific research and collaboration between Italy and the United States, 2016. For outstanding research on Ebola transmission and control.

Named UF Research Foundation Professor for excellence in research, 2017-2020.

Altmetric Top 100 Scientific Papers of 2017: Rank #9 for Henao-Restrepo A-M, Camacho A, Longini IM, *et al.*: 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**, 505-18 (2017).
<https://www.altmetric.com/top100/2017/#list&article=14949611>

Named UF College of Medicine’s Term Professor for leadership in his discipline 2018-2021.

National Geographic top 20 Scientific Discoveries of the Decade “Changing the course of disease: In response to the 2014-2016 Ebola outbreak in West Africa, public health officials and the pharmaceutical company Merck fast-tracked rVSV-ZEBOV, an experimental Ebola vaccine. After a highly successful field trial in 2015, European officials approved the vaccine in 2019—a milestone in the fight against the deadly disease,”
<https://www.nationalgeographic.com/science/2019/12/top-20-scientific-discoveries-of-decade-2010s/> . December 5, 2019.

Ph. D. Students and Post-Docs

Chaired Ph.D. Committee for 21 successful candidates

Chaired M.S. Committee for 3 successful masters candidates

Advised 14 Post Docs

Some Recent Seminars and Talks

“A large, international, multicenter, adaptive, randomized vaccine efficacy trial for COVID-19: Some dynamic statistical details for finding one or more safe and effective vaccines at warp, warp speed,” invited talk at the COVID-19, Workshop on Infectious Dynamics of Pandemics: Mathematical and statistical challenges in understanding the dynamics of infectious disease pandemics, Isaac Newton Institute for Mathematical Sciences, 22 May 2020, Cambridge, England

“Efforts towards evaluation of COVID-19 vaccines,” invited talk at the WHO Covid-19: Global Research and Innovation Forum, 1 - 2 July 2020, Geneva, Switzerland

“Overview of published protocols for Phase 2b/Phase 3 vaccine evaluation,” invited talk at the WHO

COVID-19 Global Research and Innovation Forum, 26 October 2020, Geneva, Switzerland

“Stepped wedge design for COVID-19 phase 3 vaccine trials,” invited talk at the WHO ad hoc consultation Next steps for COVID-19 vaccine clinical evaluation, 6 November 2020, Geneva, Switzerland

"What to expect from the current and coming COVID-19 phase-III randomized vaccine trials," invited talk at the University of Florida Emerging Pathogens COVID-19 Vaccine Seminar Series, 2 December 2020, Gainesville, FL.

“Statistical approaches to studying transmission: Design and analysis of studies to measure the impact of vaccination on transmission on both the individual and population level for COVID-19,” invited talk at the Workshop on “Pre-and Post-Licensure Assessments of COVID-19 Vaccine Efficacy/Effectiveness Against Infection & Transmission” co-organised by the COVAX Clinical Development & Operations SWAT Team and the COVAX Post Introduction Evaluations Workstream, 17 December, 2020, Seattle, WA

“Modelling explorations of alternative delivery strategies and immunization schedules,” invited talk at the WHO ad hoc consultation COVID-19 vaccines: Knowledge gaps and research priorities, 15 January 2021, Geneva, Switzerland

“Non-randomised studies to assess effects of COVID-19 vaccines,” invited talk at the WHO COVID-19 Vaccines Research Forum, 2 March 2021, Geneva, Switzerland.

“Sieve analysis and their relevance for randomized and non-randomised trials,” invited talk at the WHO COVID-19 Vaccines Research Forum, 6 April 2021, Geneva, Switzerland.

“Potential for augmenting information about correlates of protection: Large, simple randomized trials and observational studies,” invited talk at the WHO COVID-19 vaccines meeting on correlates of protection, 26 May 2021, Geneva, Switzerland.

“What research is needed to evaluate complementary vaccine strategies?,” invited talk at the WHO COVID-19 vaccines meeting on vaccine boost strategies in the context of the emergence of variants of concern, 13 August 2021, Geneva, Switzerland.

“Potential of large-scale, simple randomized trials for augmenting information about correlates of protection and reliably establishing correlates of protection,” at the invited talk WHO COVID-19 vaccines meeting: Will emerging data allow increased reliance on vaccine immune responses for public health and regulatory decision-making? 3 September 2021, Geneva, Switzerland.