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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

- 1/06- present Full Member, Vaccine and Infectious Disease Institute, Fred Hutchinson Cancer Research Center, Seattle, WA.;
Full Professor of Biostatistics, Department of Biostatistics, School of Public Health and Community Medicine, University of Washington, Seattle, WA.
- 1/06 – present 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

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," *AIE 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).

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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).
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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).
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- (CAIV-T) against influenza A (H1N1) and B using surveillance cultures. *American Journal of Epidemiology* **158**, 305-311 (2003).
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114. Handel, A., Longini, I.M. and Antia, R.: Neuraminidase inhibitors resistance in influenza: Assessing the danger of its generation and spread. *PLoS Computational Biology* **3**, e240 [doi:10.1371/journal.pcbi.0030240](https://doi.org/10.1371/journal.pcbi.0030240) (2007).
115. Longini, I.M., Halloran, M.E., Nizam A., Yang, Y., *et al.* : Containing a large bioterrorist smallpox attack: A computer simulation approach. *International Journal of Infectious Diseases* **11**, 98-108 (2007).
116. Abu-Raddad, L.J. and Longini, I.M.: No HIV stage is dominant in driving the HIV epidemic in sub-Saharan Africa, *AIDS* **22**, 1055-61, (2008).
117. Halloran, M.E., Ferguson, N.M., Eubank, S., Longini, I.M., *et al.* : Modeling targeted layered containment of an influenza pandemic in the United States. *Proceedings of the National Academy of Sciences* **105**, 4639-4644 (2008).
118. Abu-Raddad, L.J., Meier, A.S., Celum, C., Wald, A., Morris, M., Longini, I.M., Self, S.G. and Corey, L: Genital herpes has fueled the differential spread of HIV/AIDS in Sub-Saharan Africa. *PloS One* **3**, e2212, (2008).

119. Sander, B., Nizam, A., Postma, M., Garrison, L.P., Halloran, M.E., and Longini, I.M.: Economic evaluation of influenza pandemic mitigation strategies in the US using a stochastic microsimulation model, *Value in Health* **12**, 226-233 (2009).
120. Yang, Y., Gilbert, P., Longini, I.M. and Halloran, M.E.: Estimating vaccine efficacy per infectious contact: A Bayesian framework with adjustment for measurement error. *Annals of Applied Statistics* **2**, 1409-1431 (2008 - http://www.imstat.org/aoas/next_issue.html).
121. Basta, N., Halloran, M.E., Matrajt, L. and Longini, I.M.: Estimating influenza vaccine efficacy from challenge and community-based study data. *American Journal of Epidemiology* **168**, 1343-1352 (2008).
122. Handel, A., Longini, I.M. and Antia, R.: Antiviral resistance and the control of pandemic influenza: The roles of stochasticity, evolution and model details. *Journal of Theoretical Biology* **256**, 117-25 (2009).
123. Yang, Y., Longini, I.M. and Halloran, M.E.: A Bayesian model for evaluating influenza antiviral efficacy in household studies with asymptomatic infections. *Biostatistics* **10**, 390-403 (2009).
124. Handel, A., Longini, I.M. and Antia, R.: Towards a quantitative understanding of the within-host dynamics of influenza A infections. *Journal of the Royal Society Interface* published online 27 May 2009 - doi: 10.1098/rsif.2009.0067.
125. Bhattacharya, S., Black, R., Bourgeois L., Clemens, J., Cravioto, A., Deen, J. L., Dougan, G., Glass, R., Grais, R.F., Greco, M., Gust, I., Holmgren, J., Kariuki, S., Lambert, P.-H., Liu, M.A., Longini, I.M., *et al.*: The cholera crisis in Africa, *Science* **324**, 885 (2009).
126. Abu-Raddad, L.J., Sabatelli, L., Achterberg, J.T., Sugimoto, J.D., Longini, I.M., C Dye, C., Halloran, M.E.: Epidemiological benefits of more effective tuberculosis vaccines, drugs, and diagnostics. *Proceedings of the National Academy of Sciences* (In print).
127. Basta, N., Chao D.L., Halloran, M.E., Matrajt, L. and Longini, I.M.: Strategies for pandemic and seasonal influenza vaccination of school children in the US *American Journal of Epidemiology* (In print).

Manuscripts Submitted or in Preparation

1. Longini, I.M, Xu, S., Basta, N., Matrajt, L., Chao, D. and Halloran, M.E.: The kinetics of immunity for influenza vaccines determine ability to contain a pandemic at the source. *Science* (Under Revision).
2. Handel, A., Longini, I.M. and Antia, R.: The generation and continued evolution of antiviral resistance during an influenza pandemic. *Journal of Theoretical Biology* (Revision submitted).
3. Alsallaq, RA, Cash, B, Weiss, HA, Longini, IM, *et al.*: Quantitative assessment of the role

of male circumcision in HIV epidemiology at the population level. (Submitted).

4. Handel, A., Longini, I.M. and Antia, R.: Control strategies for an influenza pandemic taking into account bacterial coinfection. *Epidemiology*. (Submitted).
5. Yang, Y., Sugimoto, JD, Halloran, ME, Basta, NE, Chao, DL, Matrajt, L, Potter, G, Kenah, E, Longini, IM: The transmissibility and control of novel influenza A (H1N1) virus. *Science* (Under revision).
6. Abu-Raddad, LJ, Barnabas, RV, Janes, H, Kublin, JG, Longini, IM, Wasserheit, JN: Higher levels of HIV plasma viral load in sub-Saharan Africa potentially contributed to HIV epidemic expansion. *Science*. (Submitted).

Monographs, Book Chapters, Commentaries

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).

Book Reviews

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).

Books

Longini, I.M., Hudgens, M.G.: *Lecture Notes on Stochastic Processes in Biostatistics: Applications to Infectious Diseases*. Springer-Verlag (in process).

Halloran, M.E., Longini, I.M. and Struchiner, C.J.: *The Design and Analysis of Vaccine Studies*. Springer-Verlag, 410 pp. (in print -Fall 2009).

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).

Current Service

Scientific Advisory Group, International Vaccine Institute, Seoul, South Korea

Ph. D. Students and Post-Doc

Chaired Ph.D. Committee for 9 successful candidates

Chaired M.S. Committee for 3 successful masters candidates

Currently advising 5 Ph.D. students

Advised 5 Post Docs

Current Grants and Contracts

"Evaluating The Bill and Melinda Gates Foundation Portfolio of New TB Drugs, Diagnostics and Vaccines" 2 year contract, The Bill and Melinda Gates Foundation, Investigator.

"Methods for Evaluating Vaccine Efficacy" National Institute of Allergy and Infectious Diseases, N.I.H., Investigator.

"Models of Infectious Disease Agent Studies (MIDAS)" National Institute of General Medical Sciences, N.I.H., Principal Investigator.

"Epidemiology and Ecology of *Vibrio Cholerae* in Bangladesh" National Institute of Allergy and Infectious Diseases, N.I.H., Investigator.

"Modeling the impact of male circumcision on HIV spread in sub-Saharan Africa" Puget Sound Partners for Global Health, Principal Investigator.

"Mathematical Modeling of HIV/STD Research Scientific Program" University of Washington Center for AIDS Research, NIH, Director.

Referee for the Following Journals

American Journal of Epidemiology, Biometrics, Epidemiology, International Journal of Epidemiology, Journal of AIDS, Journal of the American Statistical Association, Journal of Mathematical Biology, Mathematical Biosciences, Science, Nature, Statistics in Medicine.

Statistical Consultation or Short-term Collaboration with the Following Institutions:

International Vaccine Institute, Seoul, South Korea, 2006 – present.

International Centre for Diarrheal Disease Research, Bangladesh, 1993 – present.

Appointed to the working group on smallpox modeling that was organized under the aegis of the Secretary's (of HHS) Council on Public Health Preparedness, 2001- 2004

Los Alamos National Laboratory, Visiting faculty member to various divisions, 2000 – present.

Clinical trials committee, International AIDS Vaccine Initiative, 2000- present.

World Health Organization/Joint United Nations Program on HIV/AIDS, 2000-2003.

The All -Union Institute of Influenza, St. Petersburg, Russia. Two week consultations in 1982 and 1988.

Centers for Disease Control and Prevention: Epidemiology Program Office, Global EIS, Center for Environmental Health, Division of HIV/AIDS, National Immunizations Program, Influenza Branch. 1984-2003, joint projects on many different infectious disease problems.

The Pan American Health Organization, Dengue control project in Mexico, two week consultations in Mexico from 1984-1988.

The Vector Biology and Control Project, USAID in Latin America, Dengue control project in Mexico. Two week consultations in Mexico from 1984-1988.

USAID on assessing public health education in Bolivia, 1990.

The Pedro Kouri Institute of Tropical Medicine, Havana, Cuba,. 1986, 1989.

The Department of Public Health and Environment, Amsterdam Municipal Health Service, The Netherlands. Five day consultations form 1993-1994.

The Institut National de la Sante et de la Recherche Medicale , Unite 170, Paris, France. Visiting professor from September- December, 1993.

Medical Research Council of the UK, The Gambia, West Africa. Consultation on vaccine trial design and analysis, HIV control, 1993.

Biostatistics Research Branch, Division of AIDS, National Institute for Allergy and Infectious Diseases, National Institutes of Health. April- September, 1994, several short visits afterwards. Visiting scientist on design and analysis of HIV vaccine trials.

Member of the Data Safety and Monitoring Board, Efficacy of an Oral, Killed Enterotoxigenic *Escherichia Coli* Vaccine in Prevention of Diarrhea in Egyptian Infants and Young Children. 1996-1998.

Selected Recent Conferences and Seminars

Longini, I.M., Halloran, M.E., Nizam, A. and Yang Y.: “Analytic methods for the control of Smallpox,” Invited talk, Joint Statistical Meets, San Francisco, CA, August 3-7, 2003.

Longini, I.M., Halloran, M.E., Nizam, A. and Yang Y.: “Containing pandemic influenza with vaccines and antiviral agents,” Invited talk, Conference on Pandemic Influenza: Addressing an Unrelenting Threat, Southeast Center for Emerging Biologic Threats, Atlanta, GA, January 28, 2004.

Longini, I.M., Halloran, M.E., Nizam, A. and Yang Y.: “Containing pandemic influenza with vaccines and antiviral agents,” Invited talk, Emory University Vaccine Dinner Club, Atlanta, GA, February 4, 2004.

Longini, I.M., Halloran, M.E., Nizam, A. and Yang Y.: “Analytic methods for the control of bioterrorist smallpox,” Invited paper, American Association for the Advancement of Science Annual Meeting, Seattle, Washington, February 12-16, 2004.

Longini, I.M., Halloran, M.E., Nizam, A. and Yang Y.: “Mathematical Modeling: “Containing pandemic influenza with vaccines and antiviral agents,” Invited paper, Institute of Medicine Forum on Microbial Threats, Institute of Medicine of the National Academies, Washington, DC, June 16-17, 2004.

Longini, I.M., Halloran, M.E., Nizam, A. and Yang Y.: “Containing pandemic influenza with vaccines and antiviral agents,” Invited presentation, Secretary’s Office: Department of Health and Human Services, Washington, DC, August 23, 2004 and September 14, 2004.

Longini, I.M., Halloran, M.E., Nizam, A. and Yang Y.: “Stochastic models for bioterrorist and naturally emerging infectious disease threats: The curious case of pandemic influenza,” Invited presentation, Statistical Center for HIV/AIDS Research and Prevention, Fred Hutchinson Cancer Research Center, Seattle, WA, September 9, 2004.

Longini, I.M., Halloran, M.E., Nizam, A. and Xu, S.: “Mathematical modeling of strategies for containing pandemic influenza at the source,” Invited paper, American Association for the Advancement of Science Annual Meeting, Washington DC, February 17-21, 2005.

Longini, I.M., Nizam, A., Cummings, D., Xu, S., Ungchusak, K., Hanshaoworakul, W., Halloran, M.E.: “Containing pandemic influenza at the source: A stochastic modeling approach,” Invited presentation, Modeling in chronic and infectious disease: From biology to outcome, Fred Hutchinson Cancer Research Center, Seattle, WA, June 17, 2005.

Longini, I.M., Nizam, A., Cummings, D., Xu, S., Ungchusak, K., Hanshaoworakul, W., Halloran, M.E.: “Containing pandemic influenza at the source: A stochastic modeling approach,” Invited presentation, Department of Statistics & Actuarial-Financial Mathematics, School of Sciences, University of the Aegean, Karlovassi, Samos, Greece, August 3, 2005.

Longini, I.M.: “Impact of universal vaccination of children on community influenza: A Mathematical Model, Universal Vaccination Against Influenza B, are we ready?” Workshop in Atlanta, GA, October 24-25, 2005.

Longini, I.M.: “Controlling pandemic influenza in the U.S.,” Invited presentation, Department of Health and Human Services, Washington, DC, November 10, 2005.

Longini, I.M.: “Controlling pandemic influenza in the U.S.,” Invited presentation, Department of Homeland Security, The White House, Washington, DC, November 15, 2005.

Longini, I.M.: “Strategies for containing pandemic influenza,” Invited presentation, XIV Annual Scientific Meeting of the Instituto Mexicano del Seguro Social (IMSS), Merida, Mexico, November 14-18, 2005.

Longini, I.M.: “Control of Pandemic Influenza with Anti-Viral Agents, Vaccines and Social Distancing Measures,” Invited presentation, Pandemic preparedness and infection control meeting, Bangkok, Thailand, July 13 – 14, 2006

Longini, I.M.: “Series of Three Seminars of Statistical and Mathematical Aspects of Infectious Disease Control,” Invited presentations, International Vaccine Institute, Seoul, Korea, July 17 – 21, 2006

Longini, I.M.: “Strategies for Containing or Slowing the Spread of Pandemic Influenza: A Stochastic Simulation Model,” Invited presentation, Center for Non Linear Studies, Los Alamos National Laboratory, August 14, 2006

Longini, I.M.: “Bridging the Scales of Disease Dynamics,” Invited presentation, Pacific Institute for the Mathematical Sciences, The University of British Columbia, Vancouver, BC, Canada, September 29, 2006

Longini, I.M.: “The Threat of Pandemic Influenza: How Can We Stop the Spread?” Invited panelist and speaker, University of Washington Global Health Lecture Series, Benaroya Hall, Seattle, Washington, October 10, 2006

Longini, I.M.: “Strategies for Controlling the Spread of Pandemic Influenza,” Invited presentation. Fred Hutchinson Cancer Research Center, Seattle, Washington, October 26, 2006

Longini, I.M.: “Aspects of the Design, Analysis and Interpretation of Vaccine Trails,” Invited presentation. Asia-Pacific Institute of Tropical Medicine & Infectious Disease, Honolulu, Hawaii, November 1, 2006

Longini, I.M.: “Strategies for Controlling or Slowing the Spread of Pandemic Influenza,” Invited presentation, Pediatric Grand Rounds, Kapiolani Medical Center for Women and Children, Honolulu, Hawaii, November 2, 2006

Longini, I.M. and Abu-Raddad, L.: “Estimation and projection of population-level and individual-level effects in community based vaccine studies,” Invited presentation, Statistical and Epidemiologic Methods in HIV/AIDS Research, Division of AIDS Meeting, Vail, Co, April 11 - 13, 2007

Longini, I.M.: “Controlling Pandemic Influenza: Uses of stochastic simulation and estimation models,” Invited presentation, Future of Influenza Vaccines Meeting of the Sociedad Latinoamericana de Infectologia Pediatrica, San Jose, Costa Rica, May 10 - 11, 2007

Longini, I.M.: “Controlling Pandemic Influenza: Uses of stochastic simulation and estimation models,” Invited presentation, Physics and Theoretical Colloquium, Los Alamos National Laboratory, Los Alamos, New Mexico, May 24, 2007

Longini, I.M.: “Optimal Vaccination Strategies for Pandemic Influenza,” Invited presentation, Options for the Control of Influenza VI Symposia, Toronto, Ontario, Canada, June 21, 2007.

Longini, I.M.: “Containment and Mitigation of Pandemic Influenza,” Invited presentation, 80th Anniversary Meeting on Infectious Disease in Latin America, The Gorgas Memorial Institute in Panama City, Panama , July 17-20, 2008.