

# **Ira M. Longini, Jr.**

## **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, College of Public Health, University of Florida, Gainesville, FL
- 7/11- present Co-Director, Center for Statistics and Quantitative Infectious Diseases (CSQUID), Emerging Pathogens Institute, University of Florida, Gainesville, FL
- 1/06- 6/11 Full Member, 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

### **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).

22. Haber, M., Longini, I.M. and Cotsonis, G.A.: Statistical analysis of infectious disease data. *Biometrics* **44**, 163-173 (1988).
23. Longini, I.M.: A mathematical model for predicting the geographic spread of new infectious agents. *Mathematical Biosciences* **90**, 367-383 (1988).
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).
25. Longini, I.M., Koopman, J.S., Haber, M. and Cotsonis, G.A.: Statistical inference on risk-specific household and community transmission parameters for infectious diseases. *American Journal of Epidemiology* **128**, 845-859 (1988).
26. Longini, I.M., Clark, W.S., Byers, R.H., Lemp, G.F., Ward, J.W., Darrow, W.W., and Hethcote, H.W.: Statistical analysis of the stages of HIV infection using a Markov model. *Statistics in Medicine* **8**, 831-843 (1989).
27. Horsburgh, C.R., Ou, C.H., Jason, J., Holmberg, S.D., Longini, I.M., et al.: Duration of human immunodeficiency virus infection before detection of antibody. *Lancet* **II**, 637-640 (1989).
28. Longini, I.M., Clark, W.S., Haber, M. and Horsburgh, R.: The stages of HIV infection: Waiting times and infection transmission probabilities. In *Mathematical and Statistical Approaches to AIDS Epidemiology, Lecture Notes in Biomathematics, Volume 83* (ed. C. Castillo-Chavez) Springer-Verlag, NY, 112-137 (1989).
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).
30. Longini, I.M., Haber, M., Koopman, J.S.: Re: Use of modeling in infectious disease epidemiology. Letter to the editor. *American Journal of Epidemiology* **130**, 619-620 (1989).
31. Ackerman, E., Longini, I.M., Seaholm, S.K., and Hedin, A.S.: Simulation of mechanisms of viral interference in influenza. *International Journal of Epidemiology* **19**, 444-454 (1990).
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 CD<sup>4</sup> 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.)
35. Halloran, M.E., Haber, M., Longini, I.M.: Direct and indirect effects in vaccine efficacy and effectiveness. *American Journal of Epidemiology* **133**, 323-331 (1991).
36. Haber, M.J., Longini, I.M. and Halloran, M.E.: Measures of the effect of vaccination in a randomly mixing population. *International Journal of Epidemiology* **20**, 300-310 (1991).

37. Koopman, J.S., Longini, I.M., Jacquez, J., et al.: Assessing risk factors for transmission of infection. *American Journal of Epidemiology* **133**, 1199-1209 (1991).
38. Koopman, J.S., Prevots, R., Vaca, M.A., Gomez, H., Zarate, M.L., Longini, I.M. and Sepulveda, J.: Determinants and Predictors of dengue infection in Mexico. *American Journal of Epidemiology* **133**, 1168-1178 (1991).
39. Hethcote, H.W., Van Ark, J.W. and Longini, I.M.: A simulation model of AIDS in San Francisco: I. Model formulation and parameter estimation. *Mathematical Biosciences* **106**, 203-222 (1991).
40. Addy, C.L., Longini, I.M. and Haber, M.S.: A generalized stochastic model for the analysis of infectious disease final size data. *Biometrics* **47**, 961-974 (1991).
41. Longini, I.M., Clark, W.S., Gardner, L.I. and Brundage, J.F.: The dynamics of CD4+ T-lymphocyte decline in HIV-infected individuals: A Markov modeling approach. *Journal of Acquired Immune Deficiency Syndromes* **4**, 1141-1147 (1991).
42. Haber, M., Longini, I.M. and Halloran, M.E.: Estimation of vaccine efficacy in outbreaks of acute infectious disease. *Statistics in Medicine* **10**, 1573-1584 (1991).
43. Rampey, A.H., Longini, I.M., Haber, M.J. and Monto, A.S.: A discrete-time model for the statistical analysis of infectious disease data. *Biometrics* **48**, 117-128 (1992).
44. Longini, I.M., Byers, R.H., Hessel, N.A., and Tan, W.Y.: Estimating the stage-specific numbers of HIV infection using a Markov model and back-calculation. *Statistics in Medicine* **11**, 831-843 (1992).
45. Halloran, M.E., Haber, M. and Longini, I.M.: Interpretation and estimation of vaccine efficacy under heterogeneity. *American Journal of Epidemiology* **136**, 328-343 (1992).
46. Longini, I.M., Halloran, M.E., Haber, M. and Chen, R.T.: Methods for estimating vaccine efficacy from outbreaks of acute infectious agents. *Statistics in Medicine* **12**, 249-263 (1993).
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).
48. Longini, I.M., Halloran, M.E. and Haber, M.: Estimation of vaccine efficacy from epidemics of acute infectious agents under vaccine-related heterogeneity. *Mathematical Biosciences* **117**, 271-281 (1993).
49. Sullivan, K.M., Monto, A.S. and Longini, I.M.: Estimation of the US health impact of influenza. *American Journal of Public Health* **83**, 1712-1716 (1993).
50. 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).
51. Halloran, M.E., Longini, I.M., Struchiner, C.J., Haber, M.J. and Brunet, R.C.: Exposure efficacy and change in contact rates in evaluating HIV vaccines in the field. *Statistics in Medicine* **13**, 357-377 (1994).
52. Koopman, J.S. and Longini, I.M.: Ecological effects of individual exposures and non-linear disease dynamics in populations. *American Journal of Public Health* **84**, 836-842 (1994).

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).
56. Satten, G.A., Mastro, T.D. and Longini, I.M.: Estimating the heterosexual transmission probability of HIV-1 in Thailand. *Statistics in Medicine* **13**, 2097-2106 (1994).
57. Longini, I.M. and Halloran, M.E.: AIDS: Modeling epidemic control. *Science* **267**, 1250-1251 (1995).
58. Haber, M., Halloran, M.E., Longini, I.M. and Watelet, L.: Estimation of vaccine efficacy in a non-randomly mixing population. *Biometrical Journal* **37**, 25-38 (1995).
59. Longini, I.M., Halloran, M.E. and Haber, M.: Some current trends in estimating infectious disease vaccine efficacy. *Epidemic Models: Their Structure and Relation to Data* (ed. D. Mollison) Cambridge University Press, 394-403 (1995).
60. Longini, I.M., Clark, W.S., Satten, G.A., Byers, R.H. and Karon, J.: Staged Markov models based on CD4+ T-lymphocytes for the natural history of HIV infection. *Models for Infectious Human Diseases: Their Structure and Relation to Data* (eds. V. Isham, G. Medley) Cambridge University Press, 429-449 (1995).
61. Halloran, M.E., Longini, I.M., Struchiner, C.J., Haber, M.J.: The feasibility of prophylactic HIV vaccine trials: some statistical issues. *Models for Infectious Human Diseases: Their Structure and Relation to Data* (eds. V. Isham, G. Medley) Cambridge University Press, 76-82 (1995).
62. Jacquez, J.A., Koopman, J.S., Simon, C.P. and Longini, I.M.: Modeling progression of HIV infection: Staging and the Chicago MACS cohort. *Models for Infectious Human Diseases: Their Structure and Relation to Data* (eds. V. Isham, G. Medley) Cambridge University Press, 196-198 (1995).
63. Haber, M., Orenstein, W.A., Halloran, M.E. and Longini, I.M.: The effect of measles prior to an outbreak on estimates of vaccine efficacy following the outbreak. *American Journal of Epidemiology* **141**, 980-990 (1995).
64. Hendriks, J.C.M., Satten, G.A., Longini, I.M., van Druten, H.A.M., Schellekens, P.T.A., Coutinho, R.A. and van Griensven, G.J.P.: Use of immunological markers and continuous-time Markov models to estimate progression of HIV infection among homosexual men in Amsterdam. *Acquired Immune Deficiency Syndromes* **10**, 649-656 (1996).
65. Longini, I.M. and Halloran, M.E.: A frailty mixture model for estimating vaccine efficacy. *Applied Statistics* **45**, 165-173 (1996).
66. 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).

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).
68. Rhodes, P.H., Halloran, M.E. and Longini, I.M.: Counting process models for infectious disease data: Distinguishing exposure to infection from susceptibility. *Journal of the Royal Statistical Society B* **58**, 751-762 (1996).
69. Longini, I.M., Datta, S. and Halloran, M.E.: Measuring vaccine efficacy for both susceptibility to infection and reduction in infectiousness for prophylactic HIV-1 vaccines. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology* **13**, 440-447 (1996).
70. Halloran, M.E., Struchiner, C.J. and Longini, I.M.: Study designs for different efficacy and effectiveness aspects of vaccination. *American Journal of Epidemiology* **146**, 789-803 (1997).
71. Datta, S., Halloran, M.E. and Longini, I.M.: Augmented HIV vaccine trial designs for estimating reduction in infectiousness and protective efficacy. *Statistics in Medicine* **17**, 185-200 (1998).
72. Longini, I.M., Sagatelian, K., Rida, W.N. and Halloran, M.E.: Optimal vaccine trial design when estimating vaccine efficacy for susceptibility and infectiousness from multiple populations. *Statistics in Medicine* **17**, 1121-1136 (1998).
73. Durham, L.K., Longini, I.M., Halloran, M.E., Clemens, J.D., Nizam, A. and Rao, M.: Estimation of vaccine efficacy in the presence of waning: Application to cholera vaccines. *American Journal of Epidemiology* **147**, 948-959 (1998).
74. Golm, G.T., Halloran, M.E. and Longini, I.M.: Semiparametric models for mismeasured exposure information in vaccine trials. *Statistics in Medicine* **17**, 2335-2352 (1998).
75. Longini, I.M., Hudgens, M.G., Halloran, M.E. and Sagatelian, K.: A Markov model for measuring vaccine efficacy for both susceptibility to infection and reduction in infectiousness for prophylactic HIV vaccines. *Statistics in Medicine* **18**, 53-68 (1999).
76. Golm, G.T., Halloran, M.E. and Longini, I.M.: Semiparametric methods for multiple exposure and a bivariate outcome in HIV vaccine trials. *Biometrics* **55**, 94 -101 (1999).
77. Datta, S., Halloran, M.E. and Longini, I.M.: Randomization by individual or by household in vaccine studies. *Biometrics* **55**, 792-798 (1999).
78. Durham, L.K., Halloran, M.E., Longini, I.M. and Manatunga, A.K.: Comparing two smoothing methods for exploring waning vaccine effects. *Applied Statistics* **48**, 395-407 (1999).
79. Halloran, M.E., Longini, I.M. and Struchiner, C.J.: Design and interpretation of vaccine field studies. *Epidemiologic Reviews* **21**, 73- 88 (1999).
80. Longini, I.M., Halloran, M.E., Nizam A., Wolff, M., Mendelman, P.M., Fast, P., Belshe, R.B.: Estimation of the efficacy of live, attenuated influenza vaccine from a two-year, multi-center vaccine trial: Implications for influenza epidemic control. *Vaccine* **18**, 1902-1909 (2000).

81. Guihenneuc-Jauyaux, C., Richardson, S. and Longini, I.M.: Modelling markers of disease progression by a hidden Markov process: Application to characterizing CD4 cell decline. *Biometrics* **56**, 733-741 (2000).
82. Hudgens, M.G., Longini, I.M., Halloran, M.E., Choopanya, K., Vanichseni, S., Kitayaporn, D., Mastro, T.D. and Mock, P.A.: Estimating the HIV transmission probability in injecting drug users in Thailand. *Applied Statistics* **50**, 1-14 (2001).
83. Hudgens, M.G., Satten, G.A. and Longini, I.M.: Nonparametric maximum likelihood estimation for competing risks survival data subject to interval censoring and truncation. *Biometrics* **57**, 74-80 (2001).
84. Halloran, M.E. and Longini, I.M.: Using validation sets for outcomes and exposure to infection in vaccine field studies. *American Journal of Epidemiology* **154**, 391-398 (2001).
85. Hudgens, M.G., Longini, I.M., Vanichseni, S., Hu, D.J., Kitayaporn, D., Mock, P.A., Halloran, M.E., Satten, G.A., Choopanya, K. and Mastro, T.D.: Subtype-specific transmission probabilities for Human Immunodeficiency virus type 1 among injecting drug users in Bangkok, Thailand. *American Journal of Epidemiology* **155**, 159-168 (2002).
86. Longini, I.M., Halloran, M.E., Nizam A.: Model-based estimation of vaccine effects from community vaccine trials. *Statistics in Medicine* **21**, 481-495 (2002).
87. Longini, I.M., Hudgens, M.G. and Halloran, M.E.: Estimation of vaccine efficacy for both susceptibility to infection and reduction in infectiousness for prophylactic HIV vaccines with partner augmentation. In *The Quantitative Evaluation of HIV Prevention Programs* (Eds. Kaplan, E. and Brookmeyer, R.), Yale University Press, New Haven, 241- 259 (2002).
88. Longini, I.M., Yunus, M., Zaman, K., Siddique, A.K., Sack, R.B. and Nizam, A.: Epidemic and endemic cholera trends over thirty-three years in Bangladesh. *Journal of Infectious Diseases* **186**, 246-251 (2002).
89. Halloran, M.E., Longini, I.M., Cowart, D.M. and Nizam A.: Community trials of vaccination and the epidemic prevention potential. *Vaccine* **20**, 3254-3262 (2002).
90. Hill, A.N. and Longini, I.M.: The critical vaccination fraction for heterogeneous epidemic models. *Mathematical Biosciences* **181**, 85-106 (2002).
91. Halloran, M.E., Longini, I.M., Nizam A. and Yang, Y.: Containing bioterrorist smallpox. *Science* **298**, 1428-1432 (2002).
92. Sack, R.B., Siddique, K., Longini, I.M., *et al.*: A four year study of the epidemiology of *Vibrio cholerae* in four rural areas in Bangladesh. *Journal of Infectious Diseases* **187**, 96-101 (2003).
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).
94. Gaglani, M. J., Piedra, P.A., Herschler, G.B., Griffith, M.E., Kozinetz, C.A., Riggs, M.W., Fewlass, C., Halloran, M.E., Longini, I.M., Glezen W.P.: Direct effectiveness of the intranasal, live-attenuated, trivalent, cold-adapted, influenza virus vaccine (CAIV-T) against

- the 2000-2001 influenza A (H1N1) and B epidemic in healthy children. *Arch Pediatr Adolesc Med.* **158**, 65-73 (2004).
95. Longini, I.M., Halloran, M.E., Nizam A. and Yang, Y.: Containing pandemic influenza with antiviral agents. *American Journal of Epidemiology* **159**, 623-633 (2004).
  96. Weycker, D., Edelsberg, J., Halloran, M.E., Longini, I.M., Nizam A., Ciuryla, V. and Oster, G.: Population-wide benefits of routinely vaccinating children against influenza. *Vaccine* **23**, 1284-1293 (2005).
  97. Patel, R., Longini, I.M., Halloran, M.E.: Finding optimal vaccination strategies for pandemic influenza using genetic algorithms. *Journal of Theoretical Biology* **234**, 201-212 (2005).
  98. Longini, I.M., Halloran, M.E.: Strategy for Influenza Vaccine in High Risk Groups and Children. *American Journal of Epidemiology* **161**, 303-306 (2005).
  99. Huq, A., Sack, R.B., Nizam, A., Longini, I.M., *et al.*: Critical factors influencing the occurrence of *Vibrio cholerae* in the environment of Bangladesh. *Applied and Environmental Microbiology* **71**, 4645-4654 (2005).
  100. Regoes, R.R., Longini, I.M., Feinberg, M.B., Staprans, S.I.: Assessment of AIDS vaccination success by repeated low-dose challenges. *Public Library of Science (PloS)* **2**, 1-10 (2005).
  101. Longini, I.M., Nizam, A., Xu, S., Ungchusak, K., Hanshaoworakul, W., Cummings, D., Halloran, M.E.: Containing pandemic influenza at the source. *Science* **309**, 1083-1087 (2005).
  102. Longini, I.M. and Halloran, M.E.: Preparing for the worst-case scenario: RE: Containing pandemic influenza at the source, *Science* **310**, 1117-1118 (2005).
  103. Halloran, M.E. and Longini, I.M.: Community studies for vaccinating school children against influenza. *Science* **311**, 615-616 (2006).
  104. Yang, Y., Longini, I.M. and Halloran, M.E.: Design and evaluation of prophylactic interventions using infectious disease incidence data from close contact groups. *Applied Statistics* **55**, 317-330 (2006).
  105. Germann, T.C., Kadau, K., Longini I.M. and Macken C.A.: Mitigation strategies for pandemic influenza in the United States. *Proceedings of the National Academy of Sciences* **103**, 5935-5940 (2006).
  106. Halloran, M.E., Hayden, F., Yang Y., Longini, I.M. and Monto, A: Antiviral effects on influenza viral transmission and pathogenicity: Observations from household-based trials. *American Journal of Epidemiology* **165**, 212-221 (2007).
  107. Handel, A., Longini, I.M. and Antia, R: What is the best intervention strategy for pandemic influenza? *Proceeding of the Royal Society, B.* **274**, 833-837 (2007).
  108. Halloran, M.E., Piedra, P.A., Longini, I.M., Gaglani, M., Schmotzer, B., Fewlass, C., Herschler, G.B. and Glezen, W.P.: Efficacy of trivalent, cold-adapted, influenza virus vaccine (CAIV-T) against influenza A (Fujian) during 2003-2004 using surveillance cultures. *Vaccine* **25**, 4038-4045 (2007).

109. Yang, Y., Longini, I.M. and Halloran, M.E.: A resampling-based test to detect person-to-person transmission of infectious disease, *Annals of Applied Statistics* **1**, 211–28 (2007).
110. Yang, Y. and Longini, I.M. and Halloran, M.E.: A data-augmentation method for infectious disease incidence data from close contact groups, *Computational Statistics and Data Analysis* **51**, 6582-6595 (2007).
111. Abu-Raddad, L.J., Boily, M-C., Self, S. and Longini, I.M.: The impact of an imperfect prophylactic HIV vaccine at the population level: qualitative insights from a mathematical model, *Journal of AIDS* **45**, 454-467 (2007).
112. Yang, Y., Halloran, M.E., Sugimoto, J. and Longini, I.M.: Detecting human-to-human transmission of avian A (H5N1) influenza, *Emerging Infectious Diseases* **9**, 1348-1353 (2007).
113. Longini, I.M., Nizam, A., Ali, M., Yunus, M., Shenvi, N. and Clemens, J.D.: Controlling endemic cholera with oral vaccines. *Public Library of Science (PloS), Medicine* **4** (11) 2007: e336 [doi:10.1371/journal.pmed.0040336](https://doi.org/10.1371/journal.pmed.0040336).
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](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. 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* **325**, 885 (2009).
  125. 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* **106**, 13980-15 (2009).
  126. 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* **170**, 679–686 (2009).
  127. 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. *Epidemics* **1**, 139-152 (2009).
  128. Siddique, AK, Nair, GB, Alam, M, Sack, DA, Anwar Huq, A, Nizam, A, Longini, IM, *et al.*: El Tor cholera with Classical Toxin causing more severe disease: a new threat to Asia and beyond. *Epidemiology and Infection* **138**, 347-52 (2010).
  129. Yang, Y., Sugimoto, JD, Halloran, ME, Basta, NE, Chao, DL, Matrajt, L, Potter, G, Kenah, E, Longini, IM: The transmissibility and control of pandemic influenza A (H1N1) virus. *Science* **326**, 729-33 (2009).
  130. Handel, A., Longini, I.M. and Antia, R.: Control strategies for an influenza pandemic taking into account bacterial coinfection. *Epidemics* **1**, 185-195 (2009).
  131. 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* **7**, 35-47 (2010).
  132. Chao, D.L., Halloran, M.E., Obenchain, V.J., Longini, I.M.: FluTE, a publicly available stochastic influenza epidemic simulation model. *PLoS Computational Biology* doi:10.1371/journal.pcbi.1000656 (2010).
  133. Alsallaq, R.A., Schiffer, J.T., Longini, I.M. and Abu-Raddad, L.J.: Population level impact of an imperfect prophylactic HSV-2 vaccine. *Sexually Transmitted Diseases*. **37**, 290-297 (2010).

134. Yang, Y., Halloran, M.E., Daniels, M.J., Longini, I.M., Cumming, D.A.T. and Burke, D.S.: Modeling competing infectious pathogens from a Bayesian perspective: with application to influenza studies with incomplete laboratory results. *Journal American Statistical Association* **105**, 1310-22 (2010).
135. Chao, D.L., Halloran, M.E., Longini, I.M.: School opening dates predict pandemic influenza A (H1N1) epidemics in the USA. *Journal of Infectious Diseases* **202**, 877-880 (2010).
136. Matrajt, L. and Longini I.M.: Optimizing vaccine allocation at different points in time during an epidemic. *PLoS One* 10.1371/journal.pone.0013767 (2010).
137. Sugimoto, J.D., Borse, N.N., Ta, M.L., Stockman, L.J., Fischer, G.E., Yang, Y., Halloran, ME, Longini, I.M. and Duchin, J.S.: The effect of age on transmission of 2009 pandemic influenza A (H1N1) in a camp and associated households. *Epidemiology* **22**, 180-187 (2011).
138. Chao, D.L., Basta, N., Dean, B., Matrajt, L., Halloran, M.E. and Longini, I.M.: Planning for control of pandemic influenza H1N1 in Los Angeles County and the US. *American Journal of Epidemiology* Vol. 173, No. 10. DOI: 10.1093/aje/kwq497. Advance Access publication: March 22, 2011.
139. Chao, D.L., Halloran, M.E., Longini, I.M.: Vaccination strategies for epidemic cholera in Haiti with implications for the developing world. *Proceedings of the National Academy of Sciences* **108**, 7081-85 (2011).
140. Potter, G.E., Handcock, M.S., Halloran, M.E., and Longini, I.M.: Estimating within-household contact networks from ego-centric data. *Annals of Applied Statistics* (Accepted).
141. Kenah, E., Chao, D.L., Halloran, M.E., Matrajt, L., Longini, I.M.: The global transmission and control of influenza. *PLoS One* 10.1371/journal.pone.0019515 (2011).
142. Wang, Y., Feng, Z., Yang, Y., Self, S., Gao, Y., Longini, I.M., et al.: Hand, foot and mouth disease in China: Patterns of spread and transmissibility during 2008-2009 (Accepted).

### **Manuscripts Submitted or in Preparation**

1. Matrajt, L. and Longini, I.M.: Critical immune and vaccinated fractions for determining multiple epidemic waves. (Submitted).
2. Abu-Raddad, LJ, Barnabas, RV, Janes, H, Kublin, JG, Longini, IM and Wasserheit, JN: Higher levels of HIV plasma viral load in sub-Saharan Africa potentially contributed to HIV epidemic expansion. (Submitted).
3. Chao, D.L., Bloom, J.D., Longini, I.M.: The rapid fixation of new strains of influenza. (Under revision).

4. Yang, Y, Longini, I.M., Halloran, M.E., Obenchain, V: A Monte Carlo EM algorithm for analyzing transmission of infectious diseases. (Submitted).
5. Sugimoto, JD, Allen, AL, Kenah, EE, Halloran, ME, Chowdhury, F, Khan, AI, LaRocque, RC, Ryan, ET, Qadri, F, Calderwood, SB, Harris, JB, Longini, IM : Person-to-person transmission of *Vibrio cholerae* in Bangladesh. (Under review).

### **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.: A Theoretic Framework To Consider the Effect of Immunizing Schoolchildren Against Influenza: Implications for Research. Special Article in **Pediatrics Supplement** (in print).

### **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*. (in process).

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

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

"Containing Bioterrorist and Emerging Infectious Diseases: 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.

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

"Pandemic Influenza Micro-simulation Model for Pandemic Preparedness Planning for Los Angeles County, CA" Los Angeles County, Principal Investigator.

"Development and Testing of Dengue Vaccines" Dengue Vaccine Initiative, Bill and Melinda Gates Foundation and the International Vaccine Institute, Investigator.