

## CURRICULUM VITAE

Sander Greenland

E-mail address: lesdomes@ucla.edu

Telephone: 1-310-455-1197 (landline, no text or fax)

### Degrees and Student Honors

- 1972 A.B. University of California, Berkeley  
Major: Mathematics; Minor: Psychology  
Honors: Departmental Scholar in Mathematics; High Honors in Mathematics at Graduation; Phi Beta Kappa
- 1973 M.A. University of California, Berkeley  
Major: Mathematics  
Honors: Regents Fellowship in Mathematics
- 1976 M.S. University of California, Los Angeles  
Major: Public Health
- 1978 Dr.P.H. University of California, Los Angeles  
Major: Epidemiology; Minor: Mathematics  
Honors: Regents Fellowship in Epidemiology

### Professional Positions

- 1973-74 Research Assistant, Department of Statistics, University of California, Berkeley
- 1975-78 Statistician, UCLA School of Nursing and UCLA School of Public Health
- Fall 1978 Assistant Professor of Health Sciences, California State University Northridge
- Winter 1979 Assistant Professor of Biostatistics, Harvard School of Public Health
- Summer-Fall 1979 Assistant Research Epidemiologist, UCLA School of Public Health
- 1980-1984 Assistant Professor of Epidemiology, UCLA School of Public Health
- 1984-1989 Associate Professor of Epidemiology, UCLA School of Public Health
- Fall 1985 Visiting Associate Professor of Biostatistics, University of Sydney School of Public Health
- 1995-2004 Research Professor of Preventive Medicine, University of Southern California School of Medicine (collaborative appointment)

1989-2012	Professor of Epidemiology, UCLA School of Public Health (primary appointment)
1999-2012	Professor of Statistics, UCLA College of Letters and Science (secondary appointment)
2012-present	Research Professor and Emeritus Professor of Epidemiology and Statistics, University of California, Los Angeles

### Professional Certifications and Honors

- 1993: Chartered Statistician and Fellow, Royal Statistical Society
- 1998: Fellow, American Statistical Association
- 2009: Mildred Morehouse Lecturer, Albert Einstein Medical College
- 2009: UCLA School of Public Health Student Association Teaching Award
- 2010: Advisory Committee Service Award, U.S. Food and Drug Administration
- 2010: Bradford Hill Memorial Lecturer, London School of Hygiene and Tropical Medicine
- 2012: UCLA Fielding School of Public Health Dean's Distinguished Teaching Award
- 2013: Doctor Medicinae Honoris Causa, Aarhus University, Denmark
- 2015: Robert Dyar Labrador Memorial Lecturer, University of California, Davis.
- 2019: UCLA Fielding School of Public Health Alumni Hall of Fame

### Published Articles

1. **Greenland, S.** (1977). Response and follow-up bias in cohort studies. *American Journal of Epidemiology*, **106**, 184-187.
2. Stern, E., Misczynski, M., **Greenland, S.**, Damus, K. and Coulson, A.H. (1977). "Pap" testing and hysterectomy prevalence: a survey of communities with high and low cervical cancer rates. *American Journal of Epidemiology*, **106**, 295-309.
3. Neutra, R.R., Fienberg, S.E., **Greenland, S.** and Friedman, E.A. (1978). The effect of fetal monitoring on neonatal death rates. *New England Journal of Medicine*, **299**, 324-326.
4. Haile, R.W., Sullivan, C.B. and **Greenland, S.** (1978). Multiple sclerosis and dogs: a closer look. *Annals of Neurology*, **4**, 577-578.
5. **Greenland, S.** (1978). Interaction of nitrites with food, drugs, and contaminants. *Journal of Environmental Health*, **41**, 214-217.
6. Strassburg, M.A., **Greenland, S.** and Fannin, S.L. (1979). Vaccine failures in the epidemiology and control of measles. *American Journal of Public Health*, **69**, 1055-1057.

7. Strassburg, M.A. and **Greenland, S.** (1979). Methodologic problems in evaluating the carcinogenic risk potential of environmental agents. *Journal of Environmental Health*, **41**, 214-217.
8. **Greenland, S.** (1979). Limitations of the logistic analysis of epidemiologic data. *American Journal of Epidemiology*, **110**, 693-698.
9. Strassburg, M.A., Marquard, J., Fannin, S.L. and **Greenland, S.** (1980). Rubella on a university campus: an evaluation of case immunity histories. *Nursing Research*, **29**, 390-391.
10. Scalzi, C.C., Burke, L.E. and **Greenland, S.** (1980). Evaluation of an inpatient educational program for coronary patients and families. *Heart and Lung*, **9**, 846-853.
11. Neutra, R.R., **Greenland, S.** and Friedman, E.A. (1980). The effect of fetal monitoring on cesarean section rates. *Obstetrics and Gynecology*, **55**, 175-180.
12. Rothman, K.J., **Greenland, S.** and Walker, A.M. (1980). Concepts of interaction. *American Journal of Epidemiology*, **112**, 467-470.
13. **Greenland, S.**, Reisbord, L.S., Haldeman, S. and Buerger, A.A. (1980). Controlled clinical trials of manipulation: a review and a proposal. *Journal of Occupational Medicine*, **22**, 670-676.
14. **Greenland, S.** and Neutra, R.R. (1980). Control of confounding in the assessment of medical technology. *International Journal of Epidemiology*, **9**, 361-367.
15. **Greenland, S.** (1980). The effect of misclassification in the presence of covariates. *American Journal of Epidemiology*, **112**, 564-569.
16. Strassburg, M.A., **Greenland, S.**, Marron, J.A. and Mahoney, L.E. (1981). Animal bites: patterns of treatment. *Annals of Emergency Medicine*, **10**, 193-197.
17. Stewart, M.E., **Greenland, S.** and Hoffman, J.S. (1981). First-aid treatment for poisonous snakebite: are currently recommended procedures justified? *Annals of Emergency Medicine*, **10**, 331-335.
18. Neutra, R.R., **Greenland, S.** and Friedman, E.A. (1981). The relationship between electronic fetal monitoring and the Apgar score. *American Journal of Obstetrics and Gynecology*, **140**, 440-445.
19. **Greenland, S.**, Watson, E. and Neutra, R.R. (1981). The case-control method in medical care evaluation. *Medical Care*, **19**, 872-878.
20. **Greenland, S.**, Neutra, R.R. and Galan, R. (1981). An attempt at measuring the impact of sanitation and economics on health: a reanalysis of the Colombian National Health Survey. *Public Health*, **95**, 264-272.

21. **Greenland, S.**, Morgenstern, H. and Thomas, D.C. (1981). Considerations in determining matching criteria and stratum sizes for case-control studies. *International Journal of Epidemiology*, **10**, 389-392.
22. **Greenland, S.** and Criqui, M.H. (1981). Are case-control studies more vulnerable to response bias? *American Journal of Epidemiology*, **114**, 175-177.
23. **Greenland, S.** and Neutra, R.R. (1981). An analysis of detection bias and proposed corrections in the study of estrogens and endometrial cancer. *Journal of Chronic Diseases*, **34**, 433-438.
24. **Greenland, S.** (1981). Multivariate estimation of exposure-specific incidence from case-control studies. *Journal of Chronic Diseases*, **34**, 445-453.
25. Hazaleus, R.E., **Greenland, S.** and Berdischewsky, M. (1982). Injectable cephalosporin use in a community teaching hospital. *American Journal of Hospital Pharmacy*, **39**, 482-483.
26. **Greenland, S.**, Staisch, K.J., Brown, N. and Gross, S.J. (1982). The effects of marijuana use during pregnancy I: a preliminary epidemiologic study. *American Journal of Obstetrics and Gynecology*, **143**, 408-413. Edited version reprinted as "The effect of marijuana on human pregnancy, labor, and delivery", *Neurobehavioral Toxicology*, **4**, 447-450 (1982).
27. **Greenland, S.** and Thomas, D.C. (1982). On the need for the rare disease assumption in case-control studies. *American Journal of Epidemiology*, **116**, 547-553.
28. **Greenland, S.** (1982). Interpretation and estimation of summary ratios under heterogeneity. *Statistics in Medicine*, **1**, 217-227.
29. **Greenland, S.** (1982). The effect of misclassification in matched-pair case-control studies. *American Journal of Epidemiology*, **116**, 402-406.
30. Strassburg, M.A., **Greenland, S.** and Wang, S.M. (1983). A correlational study of neural tube defects and infectious diseases. *Public Health*, **97**, 275-284.
31. Strassburg, M.A., **Greenland, S.**, Portigal, L.D. and Sever, L.E. (1983). A population-based case-control study of anencephalus and spina bifida aperta in a low-risk area. *Developmental Medicine and Child Neurology*, **25**, 632-641.
32. Thomas, D.C. and **Greenland, S.** (1983). The relative efficiencies of matched and independent sample designs for case-control studies. *Journal of Chronic Diseases*, **36**, 685-697.
33. Strassburg, M.A. and **Greenland, S.** (1983). Anencephaly and spina bifida aperta: a study of secular trends, seasonality, and geographic distribution in a low-risk area. *Neuroepidemiology*, **2**, 5-15.

34. **Greenland, S.**, Richwald, G.A. and Honda, G.D. (1983). The effects of marijuana use during pregnancy II: a study in a low-risk home-delivery population. *Drug and Alcohol Dependence*, **11**, 359-366.
35. **Greenland, S.** and Kleinbaum, D.G. (1983). Correcting for misclassification in two-way tables and matched-pair studies. *International Journal of Epidemiology*, **12**, 93-97.
36. **Greenland, S.** (1983). Tests for interaction in epidemiologic studies: a review and a study of power. *Statistics in Medicine*, **2**, 243-251.
37. **Greenland, S.** (1984). A counterexample to the test-based principle of setting confidence limits. *American Journal of Epidemiology*, **120**, 4-7.
38. **Greenland, S.** (1984). Bias in methods for deriving standardized morbidity ratios and attributable fraction estimates. *Statistics in Medicine*, **3**, 131-141.
39. Strassburg, M.A., **Greenland, S.**, Stephenson, T.G., Weiss, B.P., Auerbach, D., Habel, L.A. and Lieb, L.E. (1985). Clinical effectiveness of rubella vaccine in a college population. *Vaccine*, **3**, 109-112.
40. Reisbord, L.S. and **Greenland, S.** (1985). Factors associated with self-reported back-pain prevalence: a population-based study. *Journal of Chronic Diseases*, **38**, 691-702.
41. Thomas, D.C. and **Greenland, S.** (1985). The efficiency of matching in case-control studies of risk-factor interactions. *Journal of Chronic Diseases*, **38**, 569-574.
42. **Greenland, S.**, Olsen, J., Rachootin, P. and Thomsen-Pederson, G. (1985). The effects of electronic fetal monitoring on rates of early neonatal death, low Apgar score, and cesarean section. *Acta Obstetrica et Gynecologica Scandinavica*, **64**, 75-80.
43. **Greenland, S.** and Robins, J.M. (1985). Confounding and misclassification. *American Journal of Epidemiology*, **122**, 495-506.
44. **Greenland, S.** and Robins, J.M. (1985). Estimation of a common effect parameter from sparse follow-up data. *Biometrics*, **41**, 55-68. Corrigendum by Sato, T. (1989). On the variance estimator for the Mantel-Haenszel risk difference (letter). *Biometrics*, **45**, 1323-1324.
45. **Greenland, S.** (1985). Elementary models for biological interaction (invited paper). *Journal of Hazardous Materials*, **10**, 449-454.
46. **Greenland, S.** (1985). An application of logistic response models to the analysis of ordinal responses. *Biometrical Journal*, **27**, 189-197.
47. **Greenland, S.** (1985). Control-initiated case-control studies. *International Journal of Epidemiology*, **14**, 130-134.

48. **Greenland, S.** (1985). Power, sample size, and smallest detectable effect determination for multivariate studies. *Statistics in Medicine*, **4**, 117-127.
49. Robins, J.M., Breslow, N.E. and **Greenland, S.** (1986). Estimators of the Mantel-Haenszel variance consistent in both sparse-data and large-stratum limiting models. *Biometrics*, **42**, 311-323.
50. Strassburg, M.A., **Greenland, S.**, Sorvillo, F.J., Lieb, L.E. and Habel, L.A. (1986). Influenza in the elderly: a report of an outbreak and a review of previous vaccine effectiveness reports. *Vaccine*, **4**, 38-44.
51. Robins, J.M., **Greenland, S.** and Breslow, N.E. (1986). A general estimator for the variance of the Mantel-Haenszel odds ratio. *American Journal of Epidemiology*, **124**, 719-723.
52. Robins, J.M. and **Greenland, S.** (1986). The role of model selection in causal inference from nonexperimental data. *American Journal of Epidemiology*, **123**, 392-402.
53. **Greenland, S.**, Schlesselman, J.J. and Criqui, M.H. (1986). The fallacy of employing standardized regression coefficients and correlations as measures of effect. *American Journal of Epidemiology*, **123**, 203-208.
54. **Greenland, S.**, Thomas, D.C. and Morgenstern, H. (1986). The rare-disease assumption revisited: a critique of "Estimators of relative risk for case-control studies." *American Journal of Epidemiology*, **124**, 869-876.
55. **Greenland, S.** and Robins, J.M. (1986). Identifiability, exchangeability, and epidemiological confounding. *International Journal of Epidemiology*, **15**, 413-419.
56. **Greenland, S.** (1986). Partial and marginal matching in case-control studies (invited paper). In Moolgavkar, S. H. and Prentice, R. L. (eds.), *Modern Statistical Methods in Chronic Disease Epidemiology*. New York, Wiley, 35-49.
57. **Greenland, S.** (1986). Adjustment of risk ratios in case-base studies (hybrid epidemiologic designs). *Statistics in Medicine*, **5**, 579-584.
58. **Greenland, S.** (1986). Estimating variances of standardized estimators in case-control studies and sparse data. *Journal of Chronic Diseases*, **39**, 473-477.
59. **Greenland, S.** (1987). Interpretation and choice of effect measures in epidemiologic analysis. *American Journal of Epidemiology*, **125**, 761-768.
60. **Greenland, S.** (1987). Bias in indirectly adjusted comparisons due to taking the total study population as the reference group. *Statistics in Medicine*, **6**, 193-195.
61. **Greenland, S.** (1987). Quantitative methods in the review of epidemiologic literature. *Epidemiologic Reviews*, **9**, 1-30.

62. **Greenland, S.** (1987). Interpreting time-related trends in effect estimates. *Journal of Chronic Diseases*, **40**, suppl. 2, 17-24.
63. **Greenland, S.** (1987). Variance estimators for attributable fraction estimates consistent in both large strata and sparse data. *Statistics in Medicine*, **6**, 701-708.
64. **Greenland, S.** (1987). Estimation of exposure-specific rates from sparse case-control data. *Journal of Chronic Diseases*, **40**, 1087-1094.
65. Honda, G.D., Bernstein, L., Ross, R. K., **Greenland, S.**, Gerkins, V. and Henderson, B.E. (1988). Vasectomy, cigarette smoking, and age at first sexual intercourse as risk factors for prostate cancer in middle-aged men. *British Journal of Cancer*, **57**, 326-331.
66. Richwald, G.A., **Greenland, S.**, Johnson, B.J., Friedland, J.M., Goldstein, E.J.C. and Plichta, D.T. (1988). An assessment of the excess risk of serious *Salmonella dublin* infection associated with the use of certified raw milk. *Public Health Reports*, **103**, 489-493.
67. Baker, D.B., **Greenland, S.**, Mendlein, J. and Harmon, P. (1988). A health study of two communities near the Stringfellow waste disposal site. *Archives of Environmental Health*, **43**, 325-334.
68. **Greenland, S.** and Morgenstern, H. (1988). Classification schemes for epidemiologic research designs. *Journal of Clinical Epidemiology*, **41**, 715-716.
69. **Greenland, S.** and Frerichs, R.R. (1988). On measures and models for the effectiveness of vaccines and vaccination programs. *International Journal of Epidemiology*, **17**, 456-463.
70. **Greenland, S.** and Poole, C. (1988). Invariants and noninvariants in the concept of interdependent effects. *Scandinavian Journal of Work, Environment, and Health*, **14**, 125-129.
71. **Greenland, S.** and Mickey, R.M. (1988). Closed-form and dually consistent methods for inference on collapsibility in  $2 \times J \times K$  tables. *Applied Statistics*, **37**, 335-343.
72. **Greenland, S.** and Robins, J.M. (1988). Conceptual problems in the definition and interpretation of attributable fractions. *American Journal of Epidemiology*, **128**, 1185-1197.
73. **Greenland, S.** (1988). Probability versus Popper: An elaboration of the insufficiency of current Popperian approaches in epidemiologic analysis (invited paper). In Rothman, K.J. (ed.) *Causal Inference*. Chestnut Hill, MA, Epidemiology Resources Incorporated, 95-104.
74. **Greenland, S.** (1988). On sample-size and power calculations for studies using confidence intervals. *American Journal of Epidemiology*, **128**, 231-237.

75. **Greenland, S.** (1988). Significance tests versus continuity principles in scientific applications of statistics (invited paper). *1987 Proceedings of the Section on Statistical Education*. Alexandria, VA, American Statistical Association, 57-58.
76. **Greenland, S.** (1988). Variance estimation for epidemiologic effect estimates under misclassification. *Statistics in Medicine*, **7**, 745-757.
77. **Greenland, S.** (1988). Statistical uncertainty due to misclassification: implications for validation substudies. *Journal of Clinical Epidemiology*, **41**, 1167-1176.
78. Khoury, M.J., Flanders, W.D., **Greenland, S.** and Adams, M.J. (1989). On the measurement of susceptibility in epidemiologic studies. *American Journal of Epidemiology*, **129**, 183-190.
79. Kraus, J.F., **Greenland, S.** and Bulterys, M.G. (1989). Risk factors for sudden infant death syndrome in the U.S. Collaborative Perinatal Project. *International Journal of Epidemiology*, **18**, 113-120.
80. Richwald, G.A., **Greenland, S.**, Gerber, M.M., Potik, R., Kersey, L. and Gallagher, D.M. (1989). Effectiveness of the cavity-rim cervical cap: results of a large clinical study. *Obstetrics and Gynecology*, **74**, 143-148.
81. Mickey, R.M. and **Greenland, S.** (1989). The impact of confounder selection criteria on effect estimation. *American Journal of Epidemiology*, **129**, 125-137.
82. Robins, J.M. and **Greenland, S.** (1989). Estimability and estimation of excess and etiologic fractions. *Statistics in Medicine*, **8**, 845-859.
83. Robins, J.M. and **Greenland, S.** (1989). The probability of causation under a stochastic model for individual risks. *Biometrics*, **46**, 1125-1138. (Erratum: 1991, **48**, 824)
84. **Greenland, S.** and Morgenstern, H. (1989). What is directionality? *Journal of Clinical Epidemiology*, **42**, 821-824.
85. **Greenland, S.** and Morgenstern, H. (1989). Ecological bias, confounding, and effect modification. *International Journal of Epidemiology*, **18**, 269-274. (Erratum: 1991, **20**, 824)
86. **Greenland, S.** (1989). Modeling and variable selection in epidemiologic analysis. *American Journal of Public Health*, **79**, 340-349.
87. **Greenland, S.** (1989). Cautions in the use of preliminary-test estimators. *Statistics in Medicine*, **8**, 669-673.
88. **Greenland, S.** (1989). Generalized Mantel-Haenszel estimators for  $K \times J$  tables. *Biometrics*, **45**, 183-191.



89. **Greenland, S.** (1989). On correcting for misclassification in twin studies and other matched-pair studies. *Statistics in Medicine*, **8**, 825-829.
90. **Greenland, S.** (1989). Reader reaction: Confounding in epidemiologic studies. *Biometrics*, **45**, 1309-1310.
91. Chow, J.M., Yonekura, M.L., Richwald, G.A., **Greenland, S.**, Sweet, R.L., and Schachter, J. (1990). The association between *Chlamydia trachomatis* and ectopic pregnancy: a matched case-control study. *Journal of the American Medical Association*, **263**, 3164-3167.
92. Drews, C., Kraus, J.F., and **Greenland, S.** (1990). Recall bias in a case-control study of sudden infant death syndrome. *International Journal of Epidemiology*, **19**, 405-411.
93. Savitz, D.A., **Greenland, S.**, Stolley, P.D., and Kelsey, J.L. (1990). Scientific standards of criticism: a response to "Scientific standards in epidemiologic studies of the menace of daily life" by A. R. Feinstein. *Epidemiology*, **1**, 78-83.
94. Bulterys, M.G., **Greenland, S.**, and Kraus, J.F. (1990). Chronic fetal hypoxia and sudden infant death syndrome: Interaction between maternal smoking and low hematocrit during pregnancy. *Pediatrics*, **86**, 535-540.
95. Morgenstern, H., and **Greenland, S.** (1990). Graphing ratio measures of effect. *Journal of Clinical Epidemiology*, **43**, 539-542.
96. Drews, C., and **Greenland, S.** (1990). The impact of differential recall on the results of case-control studies. *International Journal of Epidemiology*, **19**, 1107-1112.
97. **Greenland, S.** and Morgenstern, H. (1990). Matching and efficiency in cohort studies. *American Journal of Epidemiology*, **131**, 151-159.
98. **Greenland, S.** and Salvan, A. (1990). Bias in the one-step method for pooling study results. *Statistics in Medicine*, **9**, 247-252.
99. **Greenland, S.** (1990). Randomization, statistics, and causal inference. *Epidemiology*, **1**, 421-429.
100. Robins, J.M., and **Greenland, S.** (1991). Estimability and estimation of expected years of life lost due to a hazardous exposure. *Statistics in Medicine*, **10**, 79-93.
101. Kass, P., and **Greenland, S.** (1991). Collapsibility, comparability, and epidemiologic confounding. *Journal of the American Veterinary Medical Association*, **11**, 1569-1573.
102. Flanders, W. D., and **Greenland, S.** (1991). Analytic methods for two-stage case-control studies and other stratified designs. *Statistics in Medicine*, **10**, 739-747.

103. **Greenland, S.**, Maclure, M., Schlesselman, J.J., Poole, C., and Morgenstern, H. (1991). Standardized regression coefficients: A further critique and a review of alternatives. *Epidemiology*, **2**, 387-392.
104. **Greenland, S.**, and Holland, P.W. (1991). Estimating standardized risk differences from odds ratios. *Biometrics*, **47**, 319-322.
105. **Greenland, S.**, and Robins, J. M. (1991). Empirical-Bayes adjustments for multiple comparisons are sometimes useful. *Epidemiology*, **2**, 244-251.
106. **Greenland, S.** (1991). Science versus advocacy: The challenge of Dr. Feinstein. *Epidemiology*, **2**, 72-79.
107. **Greenland, S.** (1991). Those who were wrong are still wrong (Invited Commentary). *American Journal of Epidemiology*, **133**, 435-436.
108. **Greenland, S.** (1991). Estimating standardized parameters from generalized linear models. *Statistics in Medicine*, **10**, 1069-1074.
109. **Greenland, S.** (1991). A mathematical analysis of the "epidemiologic necropsy". *Annals of Epidemiology*, **1**, 551-558.
110. **Greenland, S.** (1991). Reducing mean squared error in the analysis of stratified epidemiologic studies. *Biometrics*, **47**, 773-775.
111. **Greenland, S.** (1991). On the logical justification of conditional tests for two-by-two-contingency tables. *The American Statistician*, **45**, 248-251.
112. Brenner, H., Savitz, D. A., Jöckel, K.-H., and **Greenland, S.** (1992). The effects of nondifferential misclassification in ecologic studies. *Epidemiology*, **3**, 85-95.
113. Brenner, H., **Greenland, S.**, and Savitz, D. A. (1992). The effects of nondifferential confounder misclassification in ecologic studies. *Epidemiology*, **3**, 456-459.
114. Maclure, M., and **Greenland, S.** (1992). Tests for trend and dose-response: misinterpretations and alternatives. *American Journal of Epidemiology*, **135**, 96-104.
115. Robins, J. M., and **Greenland, S.** (1992). Identifiability and exchangeability for direct and indirect effects. *Epidemiology*, **3**, 143-155.
116. **Greenland, S.**, and Longnecker, M. P. (1992). Methods for trend estimation from summarized dose-response data, with applications to meta-analysis. *American Journal of Epidemiology*, **135**, 1301-1309.
117. **Greenland, S.** (1992). A semi-Bayes approach to the analysis of correlated associations, with an application to an occupational cancer-mortality study. *Statistics in Medicine*, **11**, 219-230.

118. **Greenland, S.** (1992). Likelihood-ratio testing as a diagnostic method for small-sample regressions. *Annals of Epidemiology*, **2**, 311-316.
119. **Greenland, S.** (1992). Divergent biases in ecologic and individual-level studies. *Statistics in Medicine*, **11**, 1209-1223.
120. Sahl, J.D., Kelsh, M. A., and **Greenland, S.** (1993). Cohort and nested case-control studies of hematopoietic cancers among electric utility workers. *Epidemiology*, **4**, 104-114.
121. Berlin, J.A., Longnecker, M.P., and **Greenland, S.** (1993). Meta-analysis of epidemiologic dose-response data. *Epidemiology*, **4**, 218-228.
122. Brenner, H., Gefeller, O., and **Greenland, S.** (1993). Risk and rate advancement periods as measures of exposure impact on the occurrence of disease. *Epidemiology*, **4**, 229-236.
123. Drews, C., **Greenland, S.**, and Flanders, W. D. (1993). The use of restricted controls to prevent recall bias in case-control studies of reproductive outcomes. *Annals of Epidemiology*, **3**, 86-92.
124. Maldonado, G., and **Greenland, S.** (1993). Interpreting model coefficients when the true model form is unknown. *Epidemiology*, **4**, 310-318.
125. Maldonado, G., and **Greenland, S.** (1993). A simulation study of confounder-selection strategies. *American Journal of Epidemiology*, **138**, 923-936.
126. **Greenland, S.**, and Brenner, H. (1993). Correcting for nondifferential misclassification in ecologic analyses. *Applied Statistics*, **42**, 117-126.
127. **Greenland, S.**, and Drescher, K. (1993). Maximum-likelihood estimation of attributable fractions from logistic models. *Biometrics*, **49**, 865-872.
128. **Greenland, S.** (1993). Basic problems in interaction assessment (invited paper). *Environmental Health Perspectives*, **101**, Suppl. 4, 59-66.
129. **Greenland, S.** (1993). Additive-risk versus additive relative-risk models. *Epidemiology*, **4**, 32-36.
130. **Greenland, S.** (1993). Summarization, smoothing, and inference. *Scandinavian Journal of Social Medicine*, **21**, 227-232.
131. **Greenland, S.** (1993). Methods for epidemiologic analyses of multiple exposures: A review and a comparative study of maximum-likelihood, preliminary testing, and empirical-Bayes regression. *Statistics in Medicine*, **12**, 717-736.
132. **Greenland, S.** (1993). A meta-analysis of coffee, myocardial infarction, and sudden coronary death. *Epidemiology*, **4**, 366-374.

133. Weinberg, C. R., Umbach, D. M., and **Greenland, S.** (1994). When will nondifferential misclassification preserve the direction of a trend? *American Journal of Epidemiology*, **140**, 565-571.
134. Ackerman, D. L., **Greenland, S.**, Morgenstern, H., and Bystritsky, A. (1994). Predictors of treatment response in obsessive compulsive disorder: Multivariate analyses from a multicenter trial of clomipramine. *Journal of Clinical Psychopharmacology*, **14**, 247-254.
135. Witte, J. S., **Greenland, S.**, Haile, R. W., and Bird, C. L. (1994). Hierarchical regression analysis applied to a study of multiple dietary exposures and breast cancer. *Epidemiology*, **5**, 612-621.
136. Maldonado, G., and **Greenland, S.** (1994). A comparison of the performance of model-based confidence intervals when the correct model form is unknown. *Epidemiology*, **5**, 171-182.
137. Robins, J. M., and **Greenland, S.** (1994). Adjusting for differential rates of prophylaxis therapy for PCP in high- versus low-dose AZT treatment arms in an AIDS randomized trial. *Journal of the American Statistical Association*, **89**, 737-749.
138. **Greenland, S.**, Salvan, A., Wegman, D. H., Hallock, M. F., and Smith, T. J. (1994). A case-control study of cancer mortality at a transformer-assembly facility. *International Archives of Occupational and Environmental Health*, **66**, 49-54.
139. **Greenland, S.**, and Poole, C. (1994). Empirical-Bayes approaches to occupational and environmental hazard surveillance. *Archives of Environmental Health*, **49**, 9-16.
140. **Greenland, S.**, and Robins, J. M. (1994). Ecologic studies: Biases, misconceptions, and counterexamples (invited commentary). *American Journal of Epidemiology*, **139**, 747-760.
141. **Greenland, S.** and Robins, J. M. (1994). Accepting the limits of ecologic studies (invited commentary). *American Journal of Epidemiology*, **139**, 769-771.
142. **Greenland, S.** and Maldonado, G. (1994). Inference on collapsibility in generalized linear models. *Biometrical Journal*, **36**, 771-782.
143. **Greenland, S.** and Maldonado, G. (1994). The interpretation of multiplicative model parameters as standardized parameters. *Statistics in Medicine*, **13**, 989-999.
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114. Kalantar-Zadeh, K., Kilpatrick, R.D., Kuwae, K., McAllister, C.J., Gjertson, D.W., **Greenland, S.**, and Kopple, J.D. (2004). Population attributable mortality risk for albumin <3.8 g/dL: how many lives can be saved if hypoalbuminemia can be corrected in hemodialysis patients? *Journal of the American Society of Nephrology*, **15**, suppl, 382A-383A.
115. Kalantar-Zadeh, K., Kilpatrick, R.D., Gjertson, D.W., **Greenland, S.**, McAllister, C.J., and Kopple, J.D. (2004). Is a low or high serum phosphorus a mortality predictor in hemodialysis patients. *American Journal of Kidney Disease*.
116. Kuwae, N., McAllister, C., Gjertson, D., **Greenland, S.**, Kopple, J., and Kalantar-Zadeh, K. (2004). Mortality predictability of serum potassium in dialysis patients. *American Journal of Kidney Disease*.
117. Jurek, A., Maldonado, G., Church T. and **Greenland, S.** (2004). Exposure measurement error is frequently ignored when interpreting epidemiologic study results. *American Journal of Epidemiology*, **159**, S72.
118. Jurek, A., Maldonado, G., and **Greenland, S.** (2004). Uncertainty analysis: An example of its application to estimating a survey proportion. *Epidemiology*, **15**, S155.
119. Moncau, J.E., Wunsch-Filho, V. and **Greenland, S.** (2004). Occupations associated with lung cancer in Sao Paulo Brazil: Application of hierarchical regression analysis. *American Journal of Epidemiology*, **159**, S53.
120. Cole, S.R., Chu, H. and **Greenland, S.** (2004). Using multiple imputation for measurement error correction in pediatric chronic kidney disease. *American Journal of Epidemiology*, **159**, S31.

121. Kilpatrick, R.D., **Greenland, S.**, McAllister, C.J., Kopple, J.D., and Kalantar-Zadeh, K. (2004). Time-dependent association between dialysis dose and cardiovascular mortality in hemodialysis patients. *Journal of the American Society of Nephrology*, **15**, suppl, 2A-3A.
122. Steenland, K. and **Greenland, S.** (2004). Monte-Carlo sensitivity analysis and Bayesian analysis of smoking as an unmeasured confounder in a study of silica and lung cancer. *American Journal of Epidemiology*, **159**, S72.
123. **Greenland, S.**, Luetters, C.M., Kelsey, J.L. and Mezei G. (2004). Is socioeconomic status related to childhood leukemia incidence? *American Journal of Epidemiology*, **159**, S95.
124. **Greenland, S.**, Gustafson, P. and Dunson, D. (2004). Application of Bayesian methods in epidemiology. *American Journal of Epidemiology*, **159**, S70.
125. **Greenland, S.** (2004). Statistics as a hindrance and an aid for inference from nonexperimental data. *American Journal of Epidemiology*, **159**, S70.
126. **Greenland, S.** (2005). Multiple-bias modeling for analysis of observational data. *Program of the 51<sup>st</sup> Meeting of the International Biometric Society*, 160.
127. Hoggatt, K.J., Ritz, B. and **Greenland, S.** (2005). An application of survival analysis methods to the study of infant birthweight. *American Journal of Epidemiology*, **161**, S73.
128. Yang, Q., **Greenland, S.** and Flanders, W.D. (2005). Separating the impact of changes in maternal age and age-specific prevalence on trends in low birth weight rates in the United States, 1980-2000. *American Journal of Epidemiology*, **161**, S129.
129. Hoggatt, K.J., **Greenland, S.** and Ritz, B. (2005). A novel application of survival analysis methods to the study of infant birthweight. *Abstracts of the Joint Statistical Meetings*, Session 72, 63.
130. **Greenland, S.** (2005). Extending likelihood-based algorithms and inference to nonidentified models. *Abstracts of the Joint Statistical Meetings*, Session 373, 315.
131. Hoggatt, K.J., Greenland, S, and Ritz, B. (2006). A two-phase analysis of air pollution and adverse birth outcomes. *Abstracts of the Joint Statistical Meetings*, Session 251, 215-216.
132. Morgenstern, H., Hashibe, M., Cui, Y., Tashkin, D.P., Zhang, Z-F., Cozen, W., Mack, T.M., and **Greenland, S.** (2006). Marijuana use and the risk of lung and upper-aerodigestive tract cancers. *American Journal of Epidemiology*, **163**, S108.
133. **Greenland, S.** (2006). Statistics for addressing methodologic issues in epidemiology. *American Journal of Epidemiology*, **163**, S166.

134. **Greenland, S.** (2006). Bias modeling via missing-data methods. *American Journal of Epidemiology*, **163**, S231.
135. **Greenland, S.** (2006). Marginal science: Facing the task of inference about an unobserved margin from an insufficient set of observed margins. *Abstracts of the 22<sup>nd</sup> Conference on Uncertainty in Artificial Intelligence*, 9.
136. Arah, O.A., Chiba, Y., and **Greenland, S.** (2007). Toward a framework for external adjustment for unmeasured confounding. *American Journal of Epidemiology*, **165**, S89.
137. **Greenland, S.** (2007). Hierarchical models for biases in observational studies. *Abstracts of the Joint Statistical Meetings*, Session 357, 283.
138. Jurek, A., **Greenland, S.**, and Carlin, B. (2009). Accounting for data errors in a birth-certificate study of maternal cigarette smoking and cleft lip and palate. *American Journal of Epidemiology*, **169**, S42.
139. Maldonado, G.M., **Greenland, S.**, and Poole, C. (2009). Assumptions, assumptions, assumptions. *American Journal of Epidemiology*, **169**, S38.
140. Gustafson, P. and **Greenland, S.** (2009). A diagnostic for uncertainty intervals from nonidentified models. *American Journal of Epidemiology*, **169**, S90.
141. **Greenland, S.** (2009). Overthrowing the tyranny of the null hypothesis in graphs. *American Journal of Epidemiology*, **169**, S39.
142. **Greenland, S.** (2009). Translating graphical models into statistical methods. *American Journal of Epidemiology*, **169**, S126.
143. Jurek, A., **Greenland, S.**, Spector, L., Roesler, M., and Ross, J. (2010). Self-report versus medical record data in a study of infant leukemia: A report from the children's oncology group. *American Journal of Epidemiology*, **171**, S59.
144. Howe, C.J., Cole, S.R., Westreich, D.J., **Greenland, S.**, Napravnik, S., and Eron, J.E. (2011). Splines for trend analysis and continuous confounder control in epidemiologic research. *American Journal of Epidemiology*, **173**, S273.
145. Zhu, M., Chu, H. and **Greenland, S.** (2011). A cautionary note on standard errors from complex survey analysis: classical weighted least squares, generalized estimating equation, or information-weighted least-squares regression? *Abstracts of the 139th Annual APHA Meeting*, presentation 248057.
146. **Greenland, S.** (2011). All inference is biased judgment. *Journal of Epidemiology and Community Health*, **65**, supplement 1, A3.

**(abstracts not tracked after 2011)**



147. Finkle, W.D., Ridgeway, G., **Greenland, S.**, Irwin, D.E., Juneau, P., Palmer, L. (2017). Risk of aortic valve and neuropsychiatric disorders following an initial prescription for levofloxacin or ciprofloxacin in the elderly. *Pharmacoepidemiology and Drug Safety*, **26**, suppl. 2, 391-392.

### Invited Presentations

1. April 1976, Los Angeles, California: UCLA School of Public Health. "Bias from subject loss in cohort studies."
2. November 1977, Boston, Massachusetts: Harvard School of Public Health. "Regression analysis of matched-pair case-control studies."
3. October 1978, Los Angeles, California: American Public Health Association. "Confounding and the selection of variables for analytic control."
4. October 1980, Montreal, Canada: Department of Epidemiology, McGill University. "Current methodologic issues in epidemiology."
5. October 1980, Detroit, Michigan: American Public Health Association. "Methodologic problems in case-control studies" (roundtable leader).
6. October 1980, Detroit, Michigan: American Public Health Association. "Dose-response considerations in logistic regression."
7. September 1981, Oxford, England: Oxford University. "Why we should abandon the P value as measure of evidence for or against the null hypothesis."
8. November 1981, Los Angeles, California: American Public Health Association. "Issues in determining matching criteria and stratum sizes in case-control studies."
9. February 1982, New Haven, Connecticut: Yale University School of Public Health. "Interpretation of summary measures when interaction present."
10. February 1982, Bethesda, Maryland: USUHS Medical School. "The effects of marijuana use during pregnancy."
11. March 1982, Los Angeles, California: UCLA Cancer Center. "Assessment of synergy."
12. June 1982, Cincinnati, Ohio: Society for Epidemiologic Research. "Interpretation of summary measures when interaction is present."
13. June 1982, San Diego, California: IMS-Biometric Society (WNAAR). "Estimation of standardized parameters from multivariate and matched data."

14. August 1982, Ottawa, Canada: University of Ottawa. "A summary of two epidemiologic studies of the effect of marijuana use on labor and delivery."
15. September 1982, Odense, Denmark: Institute for Social Medicine, Odense University. "Internal electronic fetal monitoring: an epidemiologic evaluation of the American experience."
16. September 1982, Rotterdam, The Netherlands: International Society for Clinical Biostatistics. "Problems of interaction in the planning, analysis, and comparison of clinical studies."
17. October 1982, Albuquerque, New Mexico: University of New Mexico Tumor Registry. "Current methods and problems in analytic epidemiology."
18. October 1982, Albuquerque, New Mexico: University of New Mexico School of Medicine. "The effect of marijuana use on labor and delivery."
19. March 1983, Honolulu, Hawaii: University of Hawaii Cancer Center. "The relationship of confounding to selection bias in case-control studies."
20. February 1984, Loma Linda, California: Loma Linda University, School of Public Health. "Confounding in epidemiologic studies: some recent developments."
21. May 1984, Melbourne, Australia: University of Melbourne. "An evaluation of a home-birth practice."
22. May 1984, Adelaide Australia: Australia-New Zealand Society for Epidemiologic Research National Conference. "A workshop on current developments in design and analysis of epidemiologic studies" (series of 4 lectures).
23. May 1984, Adelaide, Australia: Australia-New Zealand Society for Occupational Medicine National Conference. "Some problems in epidemiologic analysis."
24. May 1984, Adelaide, Australia: Commonwealth Scientific and Industrial Research Organization. "Pitfalls of a statistical modeling in epidemiologic analysis."
25. May 1984, Perth, Australia: National Health and Medical Research Council, University of Western Australia. "Some current developments in epidemiologic methods" (series of 4 lectures).
26. June 1984, Sydney, Australia: Commonwealth Institute of Health, University of Sydney. "Control-initiated case-control studies."
27. June 1984, Newcastle, Australia: Department of Mathematics, University of Newcastle. "Power, sample size, and smallest detectable effect determination in epidemiologic studies."

28. June 1984, Brisbane, Australia: Queensland Institute of Medical Research, University of Queensland. "Evaluating the impact of electronic fetal monitoring."
29. June 1984, Auckland, New Zealand: Department of Community Health, University of Auckland. "Epidemiologic evaluation of medical technology."
30. September 1984, Boston, Massachusetts: Dept. of Epidemiology, Harvard School of Public Health. "Confounding and misclassification."
31. September 1984, Chapel Hill, North Carolina: Dept. of Biostatistics, University of North Carolina. "Recent issues and developments in the estimation of relative risks."
32. October 1984, Seattle, Washington: Department of Epidemiology, University of Washington. "Problems in the detection of confounding when measurement errors are present."
33. October 1984, Seattle, Washington: Dept. of Biostatistics, Fred Hutchison Cancer Research Center. "Power, sample size, and smallest detectable effect determination in multivariate studies."
34. November 1984, Anaheim, California: American Public Health Association. "Confounding, selection bias, and misclassification."
35. November 1984, Albuquerque, New Mexico: University of New Mexico Tumor Registry. "Basic survival analysis: relation to the proportional hazards model."
36. April 1985, Washington, D.C.: National Cancer Institute. "Interpreting time-related trends in effect estimates."
37. April 1985, New York, New York: Division of Epidemiology, Columbia University, School of Public Health. "Interpretation and choice of effect measures in epidemiologic analysis."
38. June 1985, Alta, Utah: Society for Industrial and Applied Mathematics. "Partial and marginal matching in case-control studies."
39. May 1986, Boston, Massachusetts: Department of Population Sciences, Harvard School of Public Health. "Raw milk: a case study of the interplay of science, public health, and politics."
40. May 1986, New York, New York: Division of Epidemiology, Columbia University School of Public Health. "Invalidity of some proposed criteria for covariate control."
41. June 1986, Minneapolis, Minnesota: Department of Epidemiology, University of Minnesota School of Public Health. "Entrenched fallacies in epidemiologic statistics."
42. September 1986, Las Vegas, Nevada: American Public Health Association. "The role of significance tests in epidemiologic analysis."

43. April 1987, San Francisco, California: Department of Preventive Medicine, University of California. "Misuses of statistics in causal analysis."
44. August 1987, San Francisco, California: American Statistical Association. "Significance testing versus continuity principles."
45. October 1987, New York, New York: Division of Epidemiology, Columbia University School of Public Health. "Confounding versus statistical validity."
46. April 1988, Davis, California: Department of Epidemiology and Preventive Medicine, University of California. "Fallacies in the definition and estimation of attributable fractions."
47. April 1988, Davis, California: Division of Biostatistics, University of California. "Statistical uncertainty due to misclassification: implications for validation substudies."
49. June 1988, Vancouver, British Columbia: Society for Epidemiologic Research. "Open population follow-up as an alternative to a fixed cohort study: implications for validity, efficiency, and generalizability."
50. September 1988, Boston, Massachusetts: Harvard School of Public Health. "Matching and efficiency in cohort studies."
51. April 1989, Baltimore, Maryland: Department of Epidemiology, Johns Hopkins School of Public Health. "Structural models and fixed margins in the analysis of two-by-two tables."
52. April 1989, New York, New York: Division of Epidemiology, Columbia University School of Public Health. "Randomization, statistics, and causal inference."
53. April 1989, New York, New York: Department of Environmental and Occupational Medicine, Mount Sinai Medical School. "Matching and efficiency in cohort studies."
54. June 1989, Birmingham, Alabama: Society for Epidemiologic Research. "Use of the case-control study design in evaluating preventive interventions."
55. June 1989, Gainesville, Florida: Department of Statistics, University of Florida. "The deduction of fixed margins in the causal analysis of two-by-two tables."
56. June 1989, Atlanta, Georgia: Department of Biostatistics and Epidemiology, Emory University School of Medicine. "Comparability, collapsibility, and confounding: the confusion continues."
57. August 1989, Helsinki, Finland: Department of Epidemiology and Biostatistics, Finnish Institute of Occupational Health. "Empirical Bayes analysis of correlated associations: application to an occupational mortality study."

58. September 1989, Linköping, Sweden: Swedish Council for Planning and Coordination of Research. "Theories of epidemiologic inference."
59. September 1989, Stockholm, Sweden: Department of Epidemiology, Karolinska Institute. "Empirical Bayes analysis of correlated associations application to an occupational mortality study."
60. September 1989, Chapel Hill, North Carolina: Department of Epidemiology, University of North Carolina School of Public Health. "A recent history of the concept of confounding."
61. February 1990, New Orleans, Louisiana: American Association for the Advancement of Science. "Meta-analysis of observational studies."
62. April 1990, Los Angeles, California: Department of Preventive Medicine, University of Southern California School of Medicine. "Counterfactual models for causal effects in epidemiology."
63. August 1990, Berkeley, California: Second Annual Meeting of the International Society for Environmental Epidemiology. "Ecologic bias: Current quantitative understanding and directions for future study."
64. November, 1990, Berkeley, California: Department of Statistics, University of California, Berkeley. "Smoothing by a maximal model: an alternative to variable selection."
- 65,66. January 1991, Davis, California: Department of Occupational Health, University of California, Davis. Also Berkeley, California: California State Department of Health. "Summarization, smoothing, and inference in epidemiologic data analysis."
67. February 1991, Ann Arbor, Michigan: Department of Epidemiology, University of Michigan School of Public Health. "Causal inference as a prediction problem."
68. February 1991, Ann Arbor, Michigan: Program in Clinical Research Design and Statistical Analysis. "Summarization, smoothing, and inference in epidemiologic data analysis."
69. April 1991, San Francisco, California: Department of Epidemiology and Biostatistics, University of California, San Francisco. "Smoothing by a maximal model: an alternative to variable selection."
- 70,71. May 1991, Helsinki, Finland: Institute of Occupational Health. Also Aarhus, Denmark: Institute of Social Medicine. "Summarization, smoothing, and inference."
72. August 1991, Atlanta, Georgia: American Statistical Association. "Semi-Bayes methods for screening effects of toxic exposures."

- 73-75. September 1991, Rotterdam, The Netherlands: Erasmus University, Department of Epidemiology and Biostatistics. Series of three lectures: "Summarization, smoothing, and inference"; "Causal inference as a prediction problem"; and "Empirical-Bayes methods for epidemiologic research".
76. October 1991, Albuquerque, New Mexico: Department of Mathematics and Statistics, University of New Mexico. "Empirical-Bayes and Semi-Bayes regression for epidemiologic analyses of multiple exposures: a comparative study."
- 77,78. April 1992, Stanford, California: Division of Epidemiology, Stanford University School of Medicine. Also June 1992, Minneapolis, Minnesota: Division of Epidemiology, University of Minnesota School of Public Health. "The role of statistics in epidemiologic research."
79. June 1992, Corvallis, Oregon: Joint Statistical Meetings of IMS and WNAR. "Causal inference as a prediction problem."
- 80,81. June 1992, Minneapolis, Minnesota: Society for Epidemiologic Research. Also July 1992, Detroit, Michigan: Henry Ford Hospital. "Hierarchical methods in logistic regression analyses of multiple exposures."
82. November 1992, Tokyo, Japan: Institute of Statistical Mathematics. "Causal inference and statistical prediction."
- 83,84. November 1992, Tokyo, Japan: Fourth Japan-US Biostatistics Conference and Institute of Statistical Mathematics. Also May 1993, Chapel Hill, North Carolina: Department of Epidemiology, University of North Carolina School of Public Health. "Hierarchical regression for epidemiologic analyses of multiple exposures."
85. May 1993, Atlanta, Georgia: International Society for Environmental Epidemiology. "Coping with the inevitable subjectivity of meta-analysis."
- 86,87. May 1993, Gainesville, Florida: Department of Statistics, University of Florida. Also May 1993, Chapel Hill, North Carolina: Department of Epidemiology, University of North Carolina School of Public Health. "Alternative models for ordinal logistic regression."
88. June 1993, Keystone, Colorado: Society for Epidemiologic Research. "Prospects and pitfalls of meta-analysis."
89. June 1993, Laramie, Wyoming: Institute of Mathematical Statistics and the Biometric Society. "Extensions of the attributable fraction and probability of causation to continuous outcomes."
- 90,91. November 1993, Thousand Oaks, California: American Statistical Association (Southern California Chapter). Also December, 1993, Santa Monica, California: RAND Corporation. "The relative performance of simple methods for handling missing covariates in epidemiologic regression analysis."

- 92,93. February 1994, Boston, Massachusetts: Harvard School of Public Health. Also May 1994, Seattle, Washington: Fred Hutchinson Cancer Research Center. "A study of basic methods for handling missing covariates in epidemiologic regression analyses."
94. May 1994, Seattle, Washington: University of Washington School of Public Health. "Ecologic studies: biases, misconceptions, and counterexamples."
95. January 1995, Sacramento, California: State of California Department of Health Services. "Application of penalized splines to HIV backprojection in L.A. County."
96. January 1995, Davis California: Department of Statistics, University of California. "Iterative reweighting in hierarchical regression for epidemiologic analysis."
- 97-99. March 1995, Baltimore, Maryland: Department of Epidemiology, Johns Hopkins School of Public Health. Also April 1995, Milan, Italy: Division of Epidemiology and Biostatistics, European Institute of Oncology, and Bath, England: Department of Statistics, University of Bath. "All models should be as big as a house: Some Savage observations for the new computer age."
100. April 1995, Lyon, International Agency for Research on Cancer. "Principles of Epidemiologic Analysis."
- 101-103. March 1996, Boston Massachusetts: Department of Epidemiology, Harvard School of Public Health. Also New Orleans, Louisiana: Department of Epidemiology and Biostatistics, Tulane University School of Public Health, and Cleveland, Ohio: Department of Epidemiology and Biostatistics, Case-Western University School of Medicine. "Sinning is believing in epidemiology."
- 104,105. March 1996, New Orleans, Louisiana: Department of Epidemiology and Biostatistics, Tulane University School of Public Health. Also Cleveland, Ohio: Department of Epidemiology and Biostatistics, Case-Western University School of Medicine. "Penalized likelihood as a unifying concept for epidemiologic analysis."
106. November 1996, Stanford, California: Division of Biostatistics, Stanford University School of Medicine. "Hierarchical regression as an unifying concept for epidemiologic statistics."
107. May 1997, Atlanta, Georgia: American Statistical Association. "Making use of higher-stage information in epidemiologic analyses."
108. May 1997, Atlanta, Georgia: Centers for Disease Control. "Should all epidemiologic regressions use random coefficients?"
109. July 1997, Santa Fe, New Mexico: Santa Fe Institute. "Causal inference as a prediction problem."
110. August 1997, Anaheim, California: American Statistical Association. "The sensitivity of a sensitivity analysis."

- 111,112. September 1997, Oviedo, Spain: XV National Meeting of the Spanish Society of Epidemiology. “Facing the limits of epidemiology” and “Multilevel modeling as a foundation for epidemiologic analysis.”
- 113,114. March 1998, Baltimore, Maryland: Department of Epidemiology, Johns Hopkins School of Public Health. Also Chapel Hill, North Carolina: Department of Epidemiology, University of North Carolina School of Public Health. “Sinning is believing in epidemiology.”
115. June 1998, Chicago, Illinois: Annual Meeting of The Society for Epidemiologic Research. “Lies, damned lies, and meta-analyses.”
116. September 1998, Helsinki, Finland: 13<sup>th</sup> International Symposium on Epidemiology in Occupational Health. “Combining ecologic and individual data: The multilevel approach.”
117. September 1998, Glasgow, Scotland: International Conference of the Royal Statistical Society. “Meta-analysis as an emerging meta-disaster.”
118. March 1999, New York, New York: Department of Epidemiology, Columbia University School of Public Health. “Principles of multilevel analysis.”
119. August 1999, Berkeley, California: School of Public Health, University of California, Berkeley. “Magnetic fields and childhood leukemia.”
- 120,121. December 1999, Marrakech, Morocco: World Health Organization Conference on Summary Measures for Population Health. Also February 2000, New York, New York: Department of Epidemiology, Columbia University School of Public Health. “Causality theory for summarization of population health in policy uses of epidemiologic results.”
122. February 2000, Chapel Hill, North Carolina: School of Public Health. “Putting prior information into epidemiologic regression analysis.”
123. February 2000, Bethesda, Maryland: Food and Drug Administration. “The Bayesian-frequentist fusion: Epidemiologic regression using random coefficients.”
- 124,125. February 2000, Washington, D.C.: American Association for Advancement of Science Annual Meeting. Also May 2000, Los Angeles: Marschak Colloquium, UCLA Department of Economics. “Overthrowing the tyranny of the null hypothesis.”
126. June 2000, Edmonton, Canada: University of Alberta International Conference on Statistics and Health. “Ecologic bias in estimating ecologic effects.”
127. June 2000, Park City, Utah: American Statistical Association Meeting on Radiation and Health. “Why the probability of causation is inappropriate for compensation schemes.”
128. July 2000, San Francisco, California: International Biometrics Conference. “Variable selection versus shrinkage in model-based control of confounding.”



129. November 2000, Houston, Texas: School of Public Health, University of Texas, Houston. "Multilevel model theory for ecologic analyses."
130. January 2001, Sacramento, California: University of California at Davis Conference in Epidemiology. "Causality theory for policy uses of epidemiologic results."
131. March 2001, Los Angeles, California: Research Conference on Biopolitics, UCLA Center for Governance. "A full Bayesian probability model for epidemiologic research on magnetic fields and childhood leukemia."
132. April 2001, Seattle, Washington: Department of Biostatistics, University of Washington School of Public Health. "Facing the nonidentification problem in epidemiology."
133. June 2001, Toronto, Canada: First National Student Congress, Canadian Society for Epidemiology and Biostatistics. "Incorporating validity concerns into epidemiologic modeling."
134. June 2001, Toronto, Canada: First North American Congress of Epidemiology. "Epidemiology and the Law" (first panel speaker).
135. June 2001, Toronto, Canada: First North American Congress of Epidemiology. "Data say nothing about epidemiologic associations and effects."
136. July 2001, Whistler, British Columbia: Workshop on Selection Bias in Epidemiologic Studies of EMF and Childhood Leukemia. "Bayesian analysis of uncontrolled confounding in the Los Angeles study of wire codes and childhood leukemia."
137. December 2001, Seattle, Washington: Center for Statistics and the Social Sciences, University of Washington. "Data say nothing at all: A plea for honesty in the packaging and practice of statistics."
138. January 2002, Los Angeles, California: Seminar on Statistical Associations and Causal Connections, Statistical Literacy Project. "Epidemiologic and statistical aspects of causal modeling."
139. March 2002, Palo Alto, California: Department of Preventive Medicine, Stanford University School of Medicine. Also Seattle, Washington: School of Nursing, University of Washington. "An introduction to multiple-bias modeling in observational data analysis."
140. March 2002, Seattle, Washington: Department of Biostatistics, University of Washington. "Quantifying biases in causal models: classical confounding versus collider-stratification bias."
141. May 2002, Berkeley, California: Mathematical Sciences Research Institute Symposium on Statistical Challenges for Meta-Analysis of Medical and Health-Policy Data. "The need for multiple-bias modeling in meta-analysis and pooled analysis."

142. June 2002, Los Angeles, California: Joint meeting of the Biometric Society (WNAS) and the Institute of Mathematical Statistics. "We can't learn anything from a sensitivity analysis without a prior for the sensitivity parameters."
143. June 2002, Palm Springs, California: Society for Epidemiologic Research. "Epidemiologists in court, part 2: Further experiences, and proposals for improving practice."
144. August 2002, Montreal, Canada: XVI World Congress of Epidemiology. "Accounting for biases with statistical analyses."
145. February 2003, Denver, Colorado: American Association for Advancement of Science Symposium on Causation in Law, Science, and Everyday Speech. "The chaos of causation: confronting courts with conflicts in concepts and methods for inferring cause and effect."
146. March 2003, San Diego, California: Colloquium on Scientific Inference and Public Policy. "Defending the rights of chemicals?"
147. June 2003, Atlanta, Georgia: Society for Epidemiologic Research. "Bayesian modeling of multiple biases."
148. August 2003, San Francisco, California: Joint Statistical Meeting of the American Statistical Association, the International Biometric Society, and the Institute of Mathematical Statistics. "The need for multiple-bias modeling in observational studies."
149. May 2004, Santa Cruz, California: Department of Applied Mathematics and Statistics, University of California. "Bayesian bias modeling and some useful approximations."
150. May 2004, Berkeley, California: Public Health Institute, University of California, Berkeley. "Meta-analysis and pooled analysis with multiple bias modeling."
151. June 2004, Salt Lake City, Utah: Society for Epidemiologic Research. "Statistics as a hindrance and an aid for inference from nonexperimental data."
152. September 2004, London, England: Department of Epidemiology, London School of Hygiene and Tropical Medicine. "Incorporating bias models into epidemiologic research."
- 153,154. September 2004, Bristol, England: Department of Social Medicine, University of Bristol. Also March 2005, Munich, Germany: Department of Psychology, Max Planck Institute for Psychiatry. "You can and should do Bayes at home: simple and effective Bayesian methods for epidemiologic research."
- 155,156. September 2004, London, England: Department of Statistics, University College. Also March 2005, Jena, Germany: Institute for Psychology, Friedrich Schiller University. "Statistics as an aid and a hindrance to observational research."

- 157,158. September 2004, London, England: Royal Statistical Society. Also March 2005, Halle, Germany: International Biometric Society, 51<sup>st</sup> Meeting, Martin Luther University. “Multiple-bias modeling for observational data” (keynote address).
159. June 2005, Toronto, Canada: Society for Epidemiologic Research. “Escaping delusions of grandeur in epidemiology and statistics.”
160. August 2005, Minneapolis, Minnesota: American Statistical Association. “Extending likelihood-based algorithms and inference to nonidentified bias models.”
- 161,162. July 2006, Cambridge, Massachusetts: 22<sup>nd</sup> Conference on Uncertainty in Artificial Intelligence, Massachusetts Institute of Technology (keynote address). Also Department of Epidemiology, Mailman School of Public Health, Columbia University, New York. “Marginal science: Facing the task of inference about an unobserved margin from an insufficient set of observed margins.”
163. February 2007, Montreal, Canada: Department of Epidemiology and Biostatistics, University of Montreal. “Options for multiple exposure variables: State your objective, please.”
- 164-166. February 2007, Quebec, Canada: Department of Preventive Medicine, University of Laval, and Portland, Oregon: Department of Public Health and Preventive Medicine, Oregon Health Sciences University. Also May 2007, San Diego, California: University of California. “Postmodern epidemiology: From the holy trinity of validity threats to the unity of graphical and missing-data perspectives.”
167. August 2007, Salt Lake City, Utah: American Statistical Association Joint Statistical Meetings. “Hierarchical models for biases in observational studies.”
168. February 2008, Vancouver, Canada: Department of Statistics, University of British Columbia. “The need for statistical theory and methods for inference on nonidentified parameters.”
- 169-171. March 2008, Erice, Italy: Ettore Majorana Foundation and Centre for Scientific Culture. Series of three lectures on “Biases and effect-measure modification,” “Meta-analysis: The study of studies,” and “Analysis of quantitative exposures.”
172. March 2008, Amsterdam, The Netherlands: Department of Epidemiology, University of Amsterdam. “The inadequacy of standard statistical theory and methods for epidemiologic research.”
173. April 2008, Rostock, Germany: Max Planck Institute for Demographic Research. “An overview of developments in longitudinal causal modeling in the health sciences, 1980-2000.”
174. April 2008, Hannover, Germany: Institute for Biostatistics, Leibniz University. “The need for statistical theory and methods for inference on nonidentified parameters.”

- 175-178. June-August 2008, Thousand Oaks, California: Amgen Corporation. Lecture series: "Causal models and causal inference in health sciences"; "Causal inference in 'broken trials': The need for intent-to-treat and g-estimation"; "Bayesian perspectives - Part I"; "Bayesian perspectives - Part II - bias in observational studies."
179. September 2008, Porto Alegre, Brazil: XVIII IEA World Congress of Epidemiology. Keynote address: "What does statistics have to offer epidemiologists?"
180. October 2008, Duarte, California: City of Hope. "The inadequacy of standard statistical theory and methods for epidemiologic research."
181. February 2009, Philadelphia, Pennsylvania: Department of Biostatistics and Epidemiology, University of Pennsylvania Medical School. "Statistics in epidemiology: It's all sensitivity analysis."
182. March 2009, Boston, Massachusetts: Department of Epidemiology, Harvard University School of Public Health. "From statistics to uncertainty analysis: A new paradigm for epidemiologic inference?"
183. March 2009, Chicago, Illinois: Department of Health Studies, University of Chicago: "Statistics in epidemiology: It's all sensitivity analysis."
184. March 2009, Cambridge, England: Center for Mathematical Sciences, Cambridge University, Conference on Causal Inference: State of the Art. "Is causal inference anything more than predictive inference for intervention alternatives?"
185. March 2009, Lyon, France: International Agency for Research on Cancer. "Statistics in epidemiology: It's all sensitivity analysis."
186. June 2009, Anaheim, California: Society for Pediatric and Perinatal Epidemiologic Research. "Bayesian perspectives for epidemiologic research."
187. June 2009, Anaheim, California: Society for Epidemiologic Research. "Overthrowing the tyranny of null hypotheses in graphs."
188. June 2009, Anaheim, California: Society for Epidemiologic Research. "Translating graphical models into statistical methods."
189. August 2009, Providence, Rhode Island: International Society for Pharmacoepidemiology. "The need for Bayesian thinking and methods in observational studies."
190. August 2009, Providence, Rhode Island: International Society for Pharmacoepidemiology. "Accounting for uncertainty about investigator bias" (keynote address).
191. September 2009, Dunedin, New Zealand: Australasian Epidemiological Association. "What good does statistics offer the epidemiologist?" (keynote address).
192. September 2009, Wellington, New Zealand: Massey University. "Accounting for

- uncertainty about investigator bias.”
193. October 2009, San Diego, California: American Society of Nephrology. "Logic, Causation, and Confounding in Health and Medical Research"
  194. March 2010, Los Angeles, California: University of California Symposium in Honor of Judea Pearl. "Predictive diagrams: Backing off from causality in DAGs."
  195. April 2010, Paris, France: Center for Research in Epidemiology and Population Health, INSERM. "Is statistics the sick man of health science?"
  - 196,197. April 2010, Rotterdam, The Netherlands: Department of Biostatistics, Erasmus University. Also Oxford, England: Oxford University. "The need for syncretism in applied statistics."
  198. April 2010, London, England: London School of Hygiene and Tropical Medicine, Bradford Hill Memorial Lecture. "Medical statistics a half-century after Bradford Hill: sometimes a blessing, often a curse."
  199. April 2010, Bristol, England: Department of Social Medicine, University of Bristol. "Meaninglessly small P-values: Adventures in pseudo-precision."
  200. April 2010, Bristol, England: Department of Philosophy, University of Bristol. "How much progress in medicine is illusory?"
  201. April 2010, Cambridge, England: Department of History and Philosophy of Science. "The art and (pseudo)science of epidemiologic risk assessment."
  202. May 2010, Riverside, California: Department of Statistics. "The need for syncretism in applied statistics."
  - 203,204. June 2010, Los Angeles, California: Marschak Colloquium, UCLA Department of Economics. Also January 2011, Park City, Utah: Fourth International IMS/ISBA Joint Meeting. "Integrating Bayesian and frequentist statistics, or: Seeing both sides of the same biased coin."
  205. May 2011, Los Angeles, California: University of California Multi-Campus Complexity Program, Human Social Complexity Videoconference. "Causal modeling of bias: A graphical overview of concepts for methods."
  - 206,207. May 2011, Ann Arbor, Michigan: Atlantic Causal Inference Conference, University of Michigan. Also Chapel Hill, North Carolina: Department of Epidemiology. "Causal inference: Much more than just statistics?" (keynote address).
  208. May 2011, Muncie, Indiana: Midwestern Biopharmaceutical Statistics Workshop, Ball State University. "Graphical and likelihood-based approaches to bias analysis."
  209. June 2011, San Luis Obispo, California: Joint Statistical Meetings of IMS and WNAR. "Is

- causal inference anything more than predictive inference for intervention alternatives?”
210. August 2011, Edinburgh, Scotland: XIX IEA World Congress of Epidemiology. Workshop presentation: “Effect modifiers that are also confounders: how to treat in analysis.”
  211. August 2011, Edinburgh, Scotland: XIX IEA World Congress of Epidemiology. Keynote address: “All inference is biased judgment.”
  - 212,213. August 2011, London, England: Department of Medical Statistics, London School of Hygiene and Tropical Medicine. Also Rotterdam, The Netherlands: Master Class in Advances in Epidemiologic Analysis, Erasmus University. “Evidence synthesis: much more than statistics.”
  214. March 2012, Davis, California: Department of Public Health Sciences, School of Medicine, University of California, Davis. “Causal Inference: Much More than Just Statistics.”
  215. March 2012, Davis, California: School of Law, University of California Davis. Symposium Witness and Discussant, “The Daubert Hearing from All the Critical Perspectives.”
  216. March 2012, Zurich, Switzerland: Department of Biostatistics, University of Zurich. “Evidence synthesis: much more than statistics.”
  217. March 2012, Zurich, Switzerland: Department of Statistics, Swiss Technical Institute. “Integrating Bayesian and frequentist statistics, or: Seeing both sides of the same biased coin.”
  218. May 2012, Los Angeles, California: California Center for Population Research, University of California, Los Angeles. “Causal Inference: Much More than Just Statistics.”
  219. November 2012, San Diego, California: Joint Meeting of the History of Science Society and the Philosophy of Science Association. “Overthrowing the tyranny of null hypotheses in health and medical sciences.”
  220. February 2013, New York City: Department of Epidemiology, Mailman School of Public Health, Columbia University. “Is Epidemiology too Difficult for Statisticians?”
  221. June 2013, Utrecht, Netherlands, Preconference of the Netherlands Epidemiology Society. “Modern methods for causal modeling in health and medical science: Cautions and capabilities.”
  222. June 2013, Utrecht, Netherlands, Conference of the Netherlands Epidemiology Society. “On the misuse, neglect, and nonsense use of epidemiologic effect measures in policy formulation.”
  - 223, 224. September 2013, Aarhus, Denmark: Department of Medicine, Aarhus University; and Stockholm, Sweden: Department of Epidemiology, Karolinska Institute. “Is Epidemiology

- too Difficult for Statisticians?"
225. September 2013, Helsinki, Finland: Finnish Epidemiology Society and the Finnish Cancer Registry. "Misconceptions and Biases in the Teaching and Applications of Statistics in Health and Medical Science."
  226. April 2014, Rochester, New York: University of Rochester Medical Center. 14th Annual Saward-Berg Honorary Lecture. "Modern statistical methods for health and medical science: Cautions and capabilities."
  227. April 2014, Western Michigan University: Center for Health Data Research, Analysis, and Mapping (HDReAM). "Overthrowing the tyranny of null hypotheses in health and medical sciences."
  - 228, 229. July 2014, School of Population and Global Health, University of Melbourne; also August 2014, National Centre for Epidemiology and Population Health, College of Medicine, Biology and Environment, The Australian National University. "On the misuse, neglect, and nonsense use of epidemiologic effect measures in policy formulation."
  - 230, 231. July 2014, Statistical Society of Australia and Faculty of Science, University of Melbourne; also August 2014, School of Public Health, Sydney University. "Overthrowing the tyranny of null hypotheses in health and medical sciences."
  - 232, 233. March 2015, Oslo, Norway: Norwegian Institute of Public Health, University of Oslo; and Aarhus, Denmark: Department of Epidemiology, Aarhus University. "Limitations and extensions of DAGs and causal models for observational epidemiology."
  234. April 2015, Stockholm, Sweden: Department of Epidemiology, Karolinska Institute. "Consensus formation from observation of complex systems with limited intervention: Why statistics needs to be absorbed into epistemology."
  235. May 2015, Davis, California: Department of Public Health Sciences, School of Medicine, University of California, Davis. "Modern methods for causal modeling in health and medical science: Uses, cautions, limits"
  236. May 2015, Davis, California: Robert Dyar Labrador Memorial Lectureship in Epidemiology, Department of Population Health and Reproduction, University of California, Davis. "A case study in how expert witnesses obstruct justice and endanger patient care."
  237. October 2015, San Diego, California: Pacific Endodontic Research Foundation, TDO Scientific Session. "Problems of safety assurance."
  238. October 2015, Durham, North Carolina: Department of Statistical Science, Duke University. "The information content of a prior distribution and the fallacy of prior spikes in 'soft' sciences."
  239. September 2016, Dunedin, New Zealand: Department of Preventive and Social Medicine,

- University of Otago School of Medicine. “A researcher's guide to understanding modern statistics.”
- 240-242. September 2016, Auckland, New Zealand: Department of Statistics, University of Auckland. Also March 2017, Boston, Massachusetts: Department of Epidemiology, Harvard T.K. Chan School of Public Health, and Pittsburgh, Pennsylvania: Department of Epidemiology, University of Pittsburgh School of Public Health. “Evidence wars: Statistical ergonomics and the information content of a P-value.”
243. September 2017, Los Angeles, California: UCLA Integrative Center for Learning and Memory Workshop on Multidisciplinary Approaches to Causal Inference. “Null hypotheses are anti-parsimonious causal explanations.”
244. September 2017, Los Angeles, California: UCLA Integrative Center for Learning and Memory Symposium on Multidisciplinary Approaches to Causal Inference. “Cognitive distortions of causal-inference statistics.”
245. October 2017, Bethesda, Maryland: American Statistical Association Symposium on Statistical Inference. “Statistical training needs to address cognitive limitations and biases.”
246. October 2017, Los Angeles, California: Department of Statistics, University of California Los Angeles. “The challenges of avoiding the abuse of statistical methodology.”
- 247-248. February 2018, Basel, Switzerland: University of Basel, Department of Environmental Sciences. Also March 2018, Faculty of Economics and Management, Free University of Bozen-Bolzano, Italy. “The unconditional information in P-values, and its refutational interpretation via S-values.”
- 249-252. February 2019, Vancouver, British Columbia: University of British Columbia, Simon Fraser University; also Montreal, Quebec: McGill University, and Boston, Massachusetts: Brigham and Women’s Hospital, Harvard University. “Statistics as a condemned building: A demolition and reconstruction plan.”
253. February 2019, Modena, Italy: Department of Biomedical, Metabolic and Neural Sciences, University of Modena and Reggio Emilia Medical School, Modena, Italy. “The need for cognitive science in statistics.”
254. May 2019, Los Angeles, California: Department of Epidemiology, University of California Los Angeles. “To stop uncertainty laundering, replace ‘significance’ and ‘confidence’ with compatibility.”
255. June 2019, Scottsdale, Arizona: International Academy of Endodontics Annual Meeting. “What if anything have we learned and can we learn from nutritional epidemiology and trials?”
256. September 2019, Lausanne, Switzerland, XXXIst Conference of the Austro-Swiss region of the International Biometric Society. “Statistics as a condemned building: A demolition



and reconstruction plan.”

257. November 2019, National Institute of Statistical Sciences Webinar: Follow-up with Three Authors. “Integrating causality, frequency, and Bayes using P-values and S-values.”
258. November 2020, Department of Philosophy, University of California, Los Angeles. “How to Not Lie with Statistics: Give descriptive imagery, not inference.”
259. November 2020, Department of Biological Sciences, Florida International University. “How to Not Lie with Statistics: Emphasize Causality and Cognition.”
260. May 2021, MRC Integrative Epidemiology Unit, University of Bristol. “Advancing statistics reform, part 1: Cognition and causation before probability and inference.”
261. May 2021, Global Studies Institute, University of Geneva. “Advancing statistics reform, part 2: Scientific results are information, not inferences or decisions.”
262. June 2021, 8th Nordic-Baltic Biometrics Conference, University of Helsinki. “The ways in which P-values measure evidence.”

### **Invited Workshops and Courses**

1. September 1982, Rotterdam, The Netherlands: Erasmus University, Department of Epidemiology: "A short course on theory and quantitative methods in epidemiology" (series of 4 lectures).
2. May 1991, Hindsgavl, Denmark: Institute of Social Medicine, University of Aarhus. “Epidemiologic theory and analysis.”
3. September 1998, Münster, Germany: Institute for Epidemiology and Social Medicine. “Epidemiologic analysis from a truly Bayesian perspective.”
4. September 1998, Helsinki, Finland: Institute of Occupational Health. “Principles of multilevel analysis.”
5. March, 1999, Chapel Hill, North Carolina: Department of Epidemiology, University of North Carolina. “Principles of multilevel analysis.”
6. January 2002, Los Angeles, California: Keck Foundation Workshop on Causal Modeling Methods (co-instructor with Judea Pearl).
- 7, 8. June 2003, Atlanta, Georgia, and June 2005, Toronto, Canada: American College of Epidemiology. “Applying quantitative sensitivity analysis to epidemiologic data” (co-instructor).
- 9-12. July-September 2005, Department of Epidemiology, Mailman School of Public Health,

- Columbia University, New York; Department of Epidemiology, Bloomberg School of Public Health, Johns Hopkins University, Baltimore; Department of Environmental and Occupational Health, University of Minnesota, Minneapolis; and Centre for Public Health Research, Massey University, Wellington, New Zealand. “Bayesian and bias-modeling methods for epidemiologic research.”
13. March 2006, 23<sup>rd</sup> Annual Behavioral Risk Factor Surveillance System Conference (CDC), Palm Springs, California. “Bayesian Perspectives for Epidemiologic Research: I. Rationale and Basic Methods. II. Regression and Bias Modeling.”
  14. February 2007, Quebec, Canada: Department of Preventive Medicine, University of Laval. “You can and should do Bayes at home, work, and school.”
  15. March 2008, Bern, Switzerland: Institute for Social and Preventive Medicine, University of Bern. “Practical Bayesian methods for the health sciences.”
  16. September 2008, Porto Alegre, Brazil: XVIII IEA World Congress of Epidemiology. Course on Epidemiologic Research and New Directions, lectures: “An overview of some advances in epidemiologic methods in the past quarter-century” and “Bayesian bias analysis”
  17. February 2009, New York, New York: Department of Epidemiology and Population Health, Albert Einstein College of Medicine. “Bayesian perspectives and bias analysis for observational epidemiologic studies.”
  18. August 2009, Silver Spring, Maryland: U.S. Food and Drug Administration. “Bayesian perspectives and methods for epidemiology.”
  19. August 2009, Dunedin, New Zealand: Australasian Epidemiological Association. “Uncertainty analysis.”
  20. April 2010, Rotterdam, The Netherlands: Department of Biostatistics, Erasmus University. “Bayesian methods and bias analysis.”
  21. September 2010, San Francisco, California: American College of Epidemiology. “Bayesian methods without Bayes theorem or MCMC.”
  22. September 2012, Chicago, Illinois: American College of Epidemiology. “Bayesian methods and bias analysis.”
  23. September 2013, Stockholm, Sweden: Department of Epidemiology, Karolinska Institute. “Penalized methods as universal tools for data analysis.”
  24. September 2013, Helsinki, Finland: Finnish Epidemiological Society and Cancer Society of Finland, University of Helsinki. “Penalized methods as universal tools for data analysis.”

25. April 2014, Aare, Sweden: Swedish Interdisciplinary Graduate School in Register-based Research. "Penalized methods as universal tools for data analysis."
26. July 2014, Melbourne, Australia: School of Population and Global Health, University of Melbourne. "Bayesian and penalised regression methods for epidemiological analysis."
27. May 2015, San Francisco, California: Department of Epidemiology and Biostatistics, School of Medicine, University of California San Francisco. "Bias analysis: How to not assume what you don't know."
28. September 2016, Auckland, New Zealand: Department of Statistics, University of Auckland. "Bayesian and penalised regression methods for epidemiological analysis."
29. February 2018, Basel, Switzerland: Department of Epidemiology and Public Health, Swiss Tropical and Public Health Institute, University of Basel. "Bayesian and Penalized Regression Methods for Nonexperimental Data Analysis."

### **Contributed Presentations**

1. June 1980, Minneapolis, Minnesota: Society for Epidemiologic Research. "Estimating exposure-specific rates from case-control data using Bayes' theorem: extensions to multiple exposure factors."
2. June 1981, Vancouver, British Columbia: Biometric Society (WJAR). "The power of tests for interaction in epidemiologic studies."
3. June 1983, Winnipeg, Manitoba: Society for Epidemiologic Research. "Effects of electronic fetal monitoring on rates of early neonatal death, low Apgar score, and cesarean section."
4. June 1985, Chapel Hill, North Carolina: Society for Epidemiologic Research. "The fallacy of employing standardized regression coefficients as measures of biological effect."
5. June 1986, Pittsburgh, Pennsylvania: Society for Epidemiologic Research. "A health study of two communities near the Stringfellow hazardous waste disposal site."
6. June 1986, Pittsburgh, Pennsylvania: Society for Epidemiologic Research. "Identifiability, exchangeability, and epidemiologic confounding."
7. June 1987, Amherst, Massachusetts: Society for Epidemiologic Research. "On the design of studies using confidence intervals."
8. June 1988, Vancouver, British Columbia: Society for Epidemiologic Research. "Validation substudy or validated study?"

9. June 1989, Birmingham, Alabama: Society for Epidemiologic Research. "Matching and efficiency in cohort studies."
10. June 1990, Snowbird, Utah: Society for Epidemiologic Research. "The nonidentifiability of direct and indirect effects."
11. June 1990, Snowbird, Utah: Society for Epidemiologic Research. "A semi-Bayes approach to the analysis of multivariate epidemiologic data, with an application to an occupational cancer-mortality study."
12. August 1990, Los Angeles, California: International Epidemiological Association. "Case-control analyses of site-specific cancer mortality at a large-transformer manufacturing plant."
13. July 1991, Santa Barbara, California: Joint Statistical Meetings of IMS and WNAR. "Modeling risk ratios from incomplete matched-cohort data: an estimating-equation approach."
14. June 1992, Corvallis, Oregon: Joint Statistical Meetings of IMS and WNAR. "Maximum-likelihood estimation of the attributable fraction from logistic models."
15. June 1992, Minneapolis, Minnesota: Society for Epidemiologic Research. "A method for modeling risk ratios from matched-cohort data."
16. June 1993, Laramie, Wyoming: Joint Statistical Meetings of IMS and WNAR. "Alternative models for ordinal logistic regression."
17. June 1994, Los Angeles, California: Joint Statistical Meetings of IMS and WNAR. "A study of basic methods for handling missing covariates in epidemiologic regression analyses."
18. June 1995, Snowbird, Utah: Society for Epidemiologic Research. "Estimation of the causal effect of a time-varying exposure on the marginal mean of a repeated binary outcome."
19. June 1995, Stanford, California: Joint Statistical Meetings of IMS and WNAR. "Historical HIV incidence modeling in regional subgroups: use of flexible discrete models with penalized splines based on prior curves."
20. June 1996, Boston Massachusetts: Society for Epidemiologic Research. "Confounding in case-crossover and case-time-control studies."
21. June 1997, Edmonton, Alberta: Society for Epidemiologic Research. "Characteristics of fluoxetine vs. placebo responders in a randomized trial of geriatric depression."
22. June 1999, Baltimore, Maryland: Society for Epidemiologic Research. "A pooled analysis of magnetic fields, wire codes, and childhood leukemia."

23. June 2000, Seattle, Washington: Society for Epidemiologic Research. “Ecologic bias in estimating ecologic effects.”
24. June 2000, Seattle, Washington: Society for Epidemiologic Research. “Bayesian and partial-Bayesian analysis of epidemiologic studies via data augmentation.”
25. August 2001, Snowbird, Utah: NCI Causal Inference Conference. “Sensitivity analysis versus Bayesian analysis of uncontrolled confounding.”
26. June 2004, Salt Lake City, Utah: Society for Epidemiologic Research. “Monte-Carlo sensitivity analysis and Bayesian analysis of smoking as an unmeasured confounder in a study of silica and lung cancer.”

### Editorial Activities

- 1982-1986 Associate Editor for *Epidemiology: A Dictionary of Terms* for Oxford University Press
- 1984-1998 Associate Editor, *American Journal of Epidemiology*
- 1985-2013 Associate Editor, *Statistics in Medicine*
- 1989-2006 Associate Editor, *Epidemiology*
- 2000-2010 Editorial Advisory Board, *Methodos* Series
- 2007-2014 Associate Editor for *A Dictionary of Epidemiology* for Oxford University Press
- 2004-present Editorial Board Member, *European Journal of Epidemiology*
- 2010-2020 Editorial Board Member, *Epidemiologic Methods*
- 2011-present Editorial Board Member, *Journal of Causal Inference*

### Reviewing Activities

Referee for *American Journal of Epidemiology*, *Epidemiology*, *European Journal of Epidemiology*, *International Journal of Epidemiology*, and *Statistics in Medicine*; occasional referee for the *American Journal of Public Health*, *The American Statistician*, *Annals of Epidemiology*, *Biometrics*, *Biometrika*, *Biostatistics*, *Communications in Statistics*, *Computational Statistics and Data Analysis*, *Controlled Clinical Trials*, *Drug Safety*, *International Statistical Review*, *Journal of the American Medical Association*, *Journal of the American Statistical Association*, *Journal of Clinical Epidemiology*, *The New England Journal of Medicine*, *Risk Analysis*, and the *Scandinavian Journal of Work, Environment, and Health*.

- 1980-1981 Review of textbook, "Case-Control Studies: Design, Conduct, Analysis," for Oxford University Press.
- 1981-1982 Review of textbook, "Epidemiologic Research: Principles and Quantitative Methods," for Lifetime Learning, Inc.
- 1981-1982 Review of textbook, "Principles of Epidemiologic Research," for John Wiley and Sons, Inc.
- 1983-1985 Review of textbook, "Modern Epidemiology," for Little, Brown, Inc.
- 1985 Review of textbook, "Methods in Observational Epidemiology," for Oxford University Press.
- 1987 Review of textbook, "Research Methods in Occupational Epidemiology," for Oxford University Press.
- 1988-89 Review of textbook, "Applied Logistic Regression," for Wiley and Sons, Inc.
- 1993 Review of textbook, "Observational Studies", for Springer-Verlag.
- 1994-1995 Review of textbook, "Methods in Observational Epidemiology" (2nd Ed.), for Oxford University Press.
- 2008 Reviewer for Medical Research Council, United Kingdom
- 2008 Reviewer for Swiss Cancer League

### **Community and Public Service Activities**

- 1980 Consultant (WOS) to Maternal and Child Health Division, Los Angeles County Department of Health Services (Dr. Erica Watson)
- 1977-1982 Consultant (WOS) to Acute Communicable Disease Control Division, Los Angeles County Department of Health Services (Marc Strassburg, M.P.H.)
- 1979-1982 Consultant (WOS) to Center for Health Enhancement, Los Angeles (Dr. Jonathan Fielding)
- 1982-1986 Consultant (WOS), Program Evaluation Division, Los Angeles County Department of Health Services (Dr. Marc Strassburg)
- 1986-1989 Consultant (WOS), Consumer's Union (Larry King)
- 1986-1989 Consultant (WOS), Acute Communicable Disease Control Division, Los Angeles County Department of Health Services (Dr. James Thomas)

- 1987-1989 Consultant (WOS) to Center for Community and Preventive Medicine, Charles R. Drew University of Medicine and Science (Dr. Bruce Allen)
- 1990-1994 Member, Health Effects Institute Working Group on Complex Mixtures (Dr. Aaron Cohen)
- 1994-1995 Member, Working Group on Recommendations for Reporting of Clinical Trials in the Biomedical Literature.
- 1994-1995 Member, International Life Sciences Institute Working Group on Meta-Analysis
- 1994-1997 Member, Health Effects Institute Particle Epidemiology Project Oversight Committee (Dr. Aaron Cohen)
- 1996-1997 Member, FDA Food Advisory Committee Working Group
- 1997-1998 Member, EPA Review Panel on Meta-Analysis of Water Chlorination and Cancer (Dr. Patricia Murphy)
- 1998-1999 Member, Federal Focus Review Panel on Application of the London Principles for Risk Assessment
- 1989-1999 Consultant (WOS), Sexually Transmitted Disease Division, Los Angeles County Department of Health Services (Dr. Gary Richwald)
- 1999-2000 Consultant (WOS), World Health Organization Global Programme on Evidence for Health Policy (Drs. Christopher Murray and Alan Lopez)
- 2000-2001 Consultant, California Birth Defects Monitoring Program, March of Dimes Birth Defects Foundation (Dr. Suzan Carmichael)
- 2000-2001 Reviewer, *Surgeon General's Report on Active Smoking and Health*, Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, CDC (Dr. Elizabeth Majestic)
- 2000-2002 Consultant, Environmental Health Investigations Branch, California State Department of Health (Dr. Raymond Neutra)
- 2000-2003 Member, Executive Committee, Society for Epidemiologic Research
- 2004-2005 Member, Epidemiology Without Borders Organizing Committee
- 2004-2005 Member, Committee on Alternate Models to Daubert Standards, National Academy of Sciences
- 2000-2006 Consultant, California State Attorney General's Office, Proposition 65 Risk Assessment (Deputy Attorney Generals: Edward Weil and Susan Durbin)
- 2005-2007 Chair, Section in Epidemiology, American Statistical Association

2006-2010	Member, Drug Safety and Risk Management Advisory Committee, Food and Drug Administration
2012-2013	Reviewer, Health Effects Institute (Dr. Kate Adams)
2012-2013	Member, Technical Expert Panel, Tufts Evidence-Based Practice Center (Dr. Stanley Ip)
2000-2014	Advisor, American Council on Science and Health
2015-2016	Consultant, Initiative for Vaccine Research, Immunization, Vaccines and Biologicals, World Health Organization (Dr. Justin Ortiz)
2018-2019	Advisor, Committee on Immunization Practices, Immunization and Safety Office, Centers for Disease Control and Prevention (Dr. Tom Shimabukuro)
2001-present	Member, Advisory Committee, Harvard Program on Causal Inference in Epidemiology and Allied Sciences (Prof. Miguel Hernán)

**The remaining sections list activities related to university employment which were discontinued over the year following my retirement from UCLA in 2012:**

### **Grants and Contracts**

1. National Institute of Child Health and Human Development: Electronic fetal monitoring and the Apgar Score. Acting Director. 7/1/80 to 11/30/80, \$38,566.
2. Biomedical Research Support Grant: Effects of marijuana use during pregnancy. Principal Investigator. 10/1/81 to 6/30/82, \$4,000.
3. Jonsson Cancer Center: Dietary questionnaire for use in studies of diet and cancer. Co-Investigator. 7/1/83 to 6/30/84, \$5,435.
4. American Association of Medical Commissioners: Analysis of health risks of raw milk. Co-Principal Investigator. 7/1/83 to 6/30/85, \$31,318.
5. State of California Department of Health Services: Riverside environmental study. Co-Principal Investigator. 7/1/84 to 12/31/85, \$44,374.
6. National Cancer Institute: Cancer epidemiology training grant. Co-Director. 7/1/80 to 6/30/85, \$543,720.
7. National Institute of Child Health and Human Development: An epidemiologic analysis of SIDS in a predefined cohort. Co-Principal Investigator. 7/1/84 to 12/31/86, \$56,761.
8. General Electric Corporation: Case-control study of cancer mortality associated with pyranol exposure. Co-Principal Investigator. 4/1/85 to 9/30/87, \$206,821.



9. University of Lowell Research Foundation: Cancer mortality at G. E. Pittsfield. Principal Investigator. 10/1/87 to 4/30/90, \$174,368.
10. National Center for Health Services Research: A comparative evaluation of methods for confounder selection in nonexperimental evaluation of medical technology. Principal Investigator. 2/1/88 to 7/31/90, \$49,908.
11. Southern California Edison, Environmental Research Division: Development of occupational injury surveillance methods. Contractor. 1/30/90 to 6/30/92, \$24,000.
12. Southern California Edison, Occupational Research Division: Analysis of occupational injury database. Contractor. 5/1/93 to 12/31/94, \$36,000.
13. Battelle Corporation, Survey Research Associates: Estimation of smoking-attributable mortality in the U.S. Contractor. 6/30/94 to 12/31/95, \$15,000.
14. Los Angeles County Department of Health Services HIV Epidemiology Program: Back-projection of human immunodeficiency virus incidence. Contractor. 12/1/92 to 12/31/96, \$58,000.
15. Epidemiology Resources: Cross-design synthesis of studies of the transdermal nicotine patch. Contractor. 10/1/95 to 1/31/97, \$42,000.
16. National Highway and Traffic Safety Administration. Pickup-truck occupants: Injuries and policy interventions. Principal Investigator. 9/01/96 to 8/31/97, \$7,119.
17. Electric Power Research Institute: Applying the case-specular method to the Savitz Denver study homes. Contractor. 2/2/96 to 12/31/98, \$30,100.
18. National Institute of Environmental Health Sciences: Attributable fraction estimates for EMF exposures. Principal Investigator. 2/01/97 to 1/31/99, \$24,770.
19. Electric Power Research Institute: Full uncertainty assessment of the relation of magnetic fields to childhood leukemia. Contractor. 8/1/01 to 6/30/02, \$47,000.
20. Public Health Institute: Assessment of lifetime risk of skin cancer from the use of coal-tar containing shampoos. Contractor. 5/22/00 to 6/30/02, \$50,000.
21. National Institute of Mental Health: OCD treatment outcomes beyond phase 3 drug trials. Co-Investigator. 8/1/98 to 7/31/03, \$400,136.
22. Rockefeller Foundation: Development of a clinical assessment scale to predict end-stage dementia. Co-Investigator. 12/1/00-11/30/03, \$100,000.
23. National Institute of Mental Health: Risk for psychopathology among lesbians and gay men. Co-Investigator. 9/29/00 to 8/31/03, \$1,344,889.

24. National Institute on Drug Abuse: Marijuana use and the risks of lung and other cancers. Co-Investigator. 4/01/99 to 3/31/04, \$2,084,531.
25. The National Institute of Diabetes, Digestive and Kidney Diseases: Urologic disease in America. Consultant. 8/02/01 to 07/31/05, \$29,490.
26. National Kidney Foundation: Reverse epidemiology in maintenance dialysis patients. Consultant. 7/01/03 to 6/30/06, \$200,000.
27. National Institute of Environmental Health Science: Parkinson's disease susceptibility-genes and pesticides. Co-Investigator. 9/1/00 to 6/30/06, \$2,149,741.
28. National Institute of Allergy and Infectious Diseases: Interdisciplinary training in HIV/AIDS epidemiology. Program Faculty. 8/1/01 to 7/31/07, \$1,402,705.
29. Boehringer-Ingelheim Corporation: Estimation of the effects of tiotropium on chronic obstructive pulmonary disease. Contractor. 7/1/06 to 12/31/08, \$90,000.
30. National Center for Complementary and Alternative Medicine: Mind/brain/body interactions in stress-related disorders. Co-Investigator. 6/30/04 to 6/30/09, \$3,908,516.
31. National Cancer Institute: Cancer epidemiology training program. Co-Investigator. 12/01/98 to 08/31/15, \$2,397,580.
32. National Institute of Diabetes, Digestive and Kidney Diseases/Los Angeles Biomed: Understanding sources of bias and outcomes in peritoneal dialysis patient research. Principal Investigator 09/16/09 to 08/31/11, \$46,211.
33. National Institute of Environmental Health Sciences: Registry study of Parkinson's disease in Denmark. Co-Investigator. 9/19/06 to 7/31/12, \$4,575,787.
34. National Institute of Diabetes Digestive and Kidney Diseases: Examining racial and cardiovascular paradoxes in chronic kidney disease. Consultant. 6/01/07 to 5/31/12, \$875,000.
35. National Institutes of Health/Fogarty: AIDS international training and research program. Program Faculty. 9/24/03 to 5/31/13, \$9,129,588.

### **University Committee Service**

- |           |   |
|-----------|---|
| 1980-1982 | Research Committee, UCLA School of Public Health          |
| 1982-1984 | Admissions Policy Committee, UCLA School of Public Health |
| 1984-1986 | Course Approval Committee, UCLA School of Public Health   |
| 1986-1988 | M.P.H. Exam Committee, UCLA School of Public Health       |

1987-1989	Educational Policy and Curriculum Committee, UCLA School of Public Health
1989-1991	Equipment Committee, UCLA School of Public Health
1991-2008	Computing Committee, UCLA School of Public Health
1980-2012	Doctoral Examination Committee, Department of Epidemiology, UCLA School of Public Health

**Regular University Courses Taught** (see also Invited Workshops and Courses, above)

1973-1974	Teaching Assistant, Statistics 2, “Introductory Statistics,” University of California, Berkeley
Winter 1978	Teaching Assistant, Public Health 147, “Principles of Epidemiology,” UCLA
Fall 1978	Instructor, Health Sciences 510C, “Cardiovascular Epidemiology,” Cal State University, Northridge
Spring 1980	Instructor, Health Sciences 592, “Biostatistics for Epidemiologists,” Cal State University, Northridge
Fall 1981	Instructor, Public Health 298B, “Advanced Analytic Epidemiology,” UCLA
1981-1984	Lecturer, Public Health 114, “Epidemiology I,” UCLA
1982-1986	Co-Instructor, Public Health 211A, “Epidemiology II,” UCLA
1980-1986	Co-Instructor, Public Health 211B, “Epidemiology III,” UCLA
1982-1987	Instructor, Epidemiology 291 (formerly Public Health 221), “Seminar in Epidemiologic Methodology,” UCLA
Summer 1992	Instructor, Epidemiology 737, “Seminar in Statistics in Epidemiology,” University of Michigan
1982-1997	Instructor, Epidemiology 202A (formerly Public Health 211C), “Epidemiology: Theory and Methodology I,” UCLA
1988-1997	Instructor, Epidemiology 202B (formerly Public Health 211D), “Epidemiology: Theory and Methodology II,” UCLA
1999-2004	Instructor, Epidemiology 211/Biostatistics 211, “Statistical Methods in Epidemiology,” UCLA
2000-2004	Instructor, Epidemiology 212/Biostatistics 209, “Epidemiologic Regression”, UCLA

- 1998-2011 Instructor, Epidemiology 204/Statistics 243, “Logic, Causation, and Probability,” UCLA
- 2005-2011 Instructor, Epidemiology 200C, “Analysis Methods”, UCLA
- 1980-2012 Instructor, Epidemiology 292 (formerly Public Health 229), “Advanced Seminar in Epidemiology,” UCLA
- 1980-2013 Instructor, Epidemiology 203 (formerly Public Health 223), “Topics in Theoretical Epidemiology,” UCLA

### **Doctoral Students Graduated**

Marc Rosenthal (1984), Gordon Dwight Honda (1986), George M. Maldonado (1990), Alberto Salvan (1990), Victoria K. Cortessis (1993), Marshall Michael Joffe (1994), John Stuart Witte (1994), Wendy McKelvey (1996), Corinne C. Aragaki (1997), Anne L. Coleman (1997), Manuela Gago-Dominguez (1998), Jose Esteban Castellao (1998), Jose Eduardo Moncau (1999), Lisa Viola Smith (2000), Nina T. Harawa (2001), Ellen Thometz Rudy (2001), Jaana Marita Leppala (2002), Katherine J. Hoggatt (2005), Ari M. Lipsky (2009).