

# Marie Davidian

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**Date and Place of Birth:** 1958; Washington, DC

## Degrees

- 1980 B.S., Applied Mathematics, University of Virginia School of Engineering and Applied Science
- 1981 M.S., Applied Mathematics, University of Virginia School of Engineering and Applied Science
- 1987 Ph.D., Statistics, University of North Carolina at Chapel Hill

## Experience

- 2007– **Director**, Center for Quantitative Sciences in Biomedicine, North Carolina State University
- 2006– **Member**, Center for Comparative Medicine and Translational Research, North Carolina State University
- 2005– **William Neal Reynolds Distinguished Professor of Statistics**, College of Agriculture and Life Sciences, North Carolina State University
- 2003– **Associate Faculty Member**, Center for Research in Scientific Computation, North Carolina State University
- 2001– **Adjunct Professor**, Department of Biostatistics and Bioinformatics, Duke University
- 1998– **Professor**, Department of Statistics, North Carolina State University
- 1996-1998 **Associate Professor**, Department of Statistics, North Carolina State University
- 1994-1996 **Associate Professor**, Department of Biostatistics, Harvard School of Public Health
- 1993-1994 **Associate Professor**, Department of Statistics, North Carolina State University
- 1987-1993 **Assistant Professor**, Department of Statistics, North Carolina State University
- 1987 **Visiting Lecturer**, Department of Statistics, University of North Carolina at Chapel Hill
- 1985 **Research Assistant**, Statistics and Biomathematics Branch, National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina
- 1982-1986 **Graduate Teaching Assistant**, Department of Statistics, University of North Carolina at Chapel Hill
- 1981-1982 **Consultant**, Booz, Allen, and Hamilton, Inc., Bethesda, Maryland

**Professional and honor societies**

American Statistical Association (ASA)  
 Institute of Mathematical Statistics (IMS)  
 The International Biometric Society (IBS), Eastern North American Region (ENAR)  
 International Statistical Institute (ISI)  
 American Association for the Advancement of Science (AAAS)  
 International Chinese Statistical Association (ICSA)  
 International Indian Statistical Association (IISA)  
 Tau Beta Pi  
 Sigma Xi

**Honors and distinctions**

1993 American Statistical Association Award for Outstanding Statistical Application  
 1994 Elected Ordinary Member, International Statistical Institute  
 1998 Fellow, American Statistical Association  
 2002 George Challis Distinguished Lectureship in Biostatistics, University of Florida  
 2003 Alumni Distinguished Graduate Professor, North Carolina State University  
 2003 Myrto Lefkopoulou Distinguished Lectureship, Harvard School of Public Health  
 2005 Alumni Outstanding Research Award, North Carolina State University  
 2005 William Neal Reynolds Distinguished Professor of Statistics, North Carolina State University  
 2006 Bernard Greenberg Distinguished Lecturer, Department of Biostatistics, University of North Carolina at Chapel Hill  
 2006 Fellow, Institute of Mathematical Statistics  
 2006 Fellow, American Association for the Advancement of Science  
 2007 Janet L. Norwood Award for Outstanding Achievement by a Woman in the Statistical Sciences,  
 2009 George W. Snedecor Award, Committee of Presidents of Statistical Societies  
 2010 Institute of Mathematical Statistics Medallion Lecturer  
 2010 Alexander Quarles Holladay Medal for Excellence, North Carolina State University  
 2011 Keynote Speaker, 5th Probability & Statistics Day, University of Maryland Baltimore County  
 2011 Florence Nightingale David Award, Committee of Presidents of Statistical Societies  
 2012 Presidential Invited Address, Spring Meeting, Eastern North American Region of the International Biometric Society

**Editorial boards**

1992–1999 Editorial Advisory Board, *Chemometrics and Intelligent Laboratory Systems*  
 1995–2001 Associate Editor, *Journal of the American Statistical Association*  
 1997–2000 Associate Editor, *Biometrics*  
 2000–2002 Coordinating Editor, *Biometrics*  
 2003–2005 Associate Editor, *Statistica Sinica*  
 2006–2011 Executive Editor, *Biometrics*  
 2006– Editorial Board, ASA-SIAM Series on Statistics and Applied Probability

**Selected professional activities**Professional society involvement

At-large Representative, Treasurer, President, North Carolina Chapter of ASA, 1989–1991  
 ASA General Methodology Section Program Chair, 1994 Joint Statistical Meetings  
 ENAR/WNAR (Western North American Region) of the IBS representative to the Biological Sciences Section of AAAS, 1996–2001  
 ENAR Program Chair, 1998 Joint Statistical Meetings

Regional Committee, ENAR, 1999-2001  
 IMS Nominating Committee, 1999  
 Program Committee, 2000 ENAR Spring Meetings  
 Co-Organizer, Workshop for Junior Researchers, ENAR, 2001, 2002  
 Program Committee, International Biometric Conference (IBC) 2002  
 Program Committee, IBC 2004  
 Chair, IBS Ad Hoc Committee on Electronic Publication of *Biometrics*, 2001–2002  
 Co-Chair, IBS Ad Hoc Committee on Print and Electronic Publication of *Biometrics*, 2002  
 Co-Chair, IBS Strategic Planning Committee, 2002–2005  
 IBS Executive Committee (Editorial Representative), 2002–2003  
 IBS Council, 2002-2009  
 President-Elect, ENAR, 2003; President, ENAR, 2004  
 Member, Committee of Presidents of Statistical Societies (COPSS), 2003–2005  
 Chair-Elect, Biometrics Section, ASA, 2004; Chair, Biometrics Section, ASA, 2005  
 Chair, IBS Editorial Advisory Committee, 2004–2007  
 ASA Committee on Nominations, 2006–2007 (Chair 2006)  
 Program Committee, 30th Annual Conference of the International Society of Clinical Biostatistics, 2009  
 IMS Program Chair, 2010 ENAR Spring Meeting  
 IMS Council, 2009–2012  
 Member, Electorate Nominating Committee, Section on Statistics, AAAS, 2010–2013  
 President-Elect, ASA, 2012; President, ASA, 2013.

#### Scientific activities

U.S. Food and Drug Administration (FDA) Advisory Committee for Pharmaceutical Science, 1994-1997  
 NIH Center for Scientific Review (CSR) AIDS and Related Research (6) (AARR-6) Study Section, 1998-2001  
 NIH CSR Social Sciences, Nursing, Epidemiology and Methods (5) (SNEM-5) Study Section, 2000–2003  
 NIH CSR Biostatistical Methods and Research Design (BMRD) Study Section, 2003–2006  
 Co-Organizer, AMS-IMS-SIAM Summer Research Conference, “Emerging Issues in Longitudinal Data Analysis,” Mount Holyoke College, 2002  
 Program Leader, Program on Inverse Problem Methodology in Complex Stochastic Models, and Local Development Committee, Statistical and Applied Mathematical Sciences Institute (SAMSI), 2002  
 Guest Editor, *Statistica Sinica*, Special Issue on Emerging Issues in Longitudinal Data Analysis, 2003  
 U.S. FDA Clinical Pharmacology Subcommittee of the Advisory Committee for Pharmaceutical Science, 2003–2006  
 Chair, NIH CSR Biostatistical Methods and Research Design (BMRD) Study Section, 2004–2006  
 Scientific Advisory Committee, Johns Hopkins Particulate Matter Research Center 2006–  
 External Advisory Committee, Center for Prevention and Treatment Methodology, Penn State University (2 P50 DA010075), 2006–2010  
 Consultant, U.S. FDA Clinical Pharmacology Subcommittee of the Advisory Committee for Pharmaceutical Science, 2006–

Program Co-Leader, SAMSI 2007 Summer Program on Dynamic Treatment Regimes and Multi-stage Decision-Making  
 NIH CSR AIDS Clinical Studies and Epidemiology (ACE) Study Section, 2007–2011  
 Co-Organizer, Atlantic Coast Symposium on the Mathematical Sciences in Biology and Biomedicine, Raleigh, North Carolina, 2008.  
 U.S. Environmental Protection Agency Science Advisory Board Exposure and Human Health Committee, 2009–2012

#### Selection committees

Search Committee,, *Journal of the American Statistical Association (JASA)* Applications and Case Studies Editor, 2001  
 Search Committee, Co-Editor, *Biometrics*, 2000, 2002, 2004–2011 (Chair),  
 COPSS Snedecor Award Selection Committee (IMS representative), 2002–2006  
 ASA Wilks Medal Committee, 2003–2007 (Chair 2007)  
 Mortimer Spiegelman Award Committee, American Public Health Association, 2003–2006, 2008  
 Search Committee, Editor, *Biometric Bulletin*, 2004 (Chair)  
 Search Committee, Book Review Editor, *Biometrics*, 2005 (Chair)  
 Search Committee for the *JASA* Theory and Methods Editor, 2006–2007

#### **Major administrative responsibilities**

##### Department Committees, North Carolina State University:

1989-1992, 1999	Admissions Committee
1991	Leadership Review Committee
1988-1991, 1997	Basic Exam Committee
1992-1993	Preliminary Written Exam Committee
1989-1990	Organizer, Tuesday Seminar Series
1997	Search Committee
1998	Biomathematics Search Committee
1998–	Course and Curriculum Committee
1998–	Organizer, Biomedical Statistics Working Group
1999-2000	Bioinformatics Search Committee
2002	Co-Organizer, Department of Statistics Retreat
2001	Search Committee
2001, 2005	Ph.D. Qualifying Exam Committee
2002	Search Committee (Chair)
2002, 2009	Ph.D. Written Exam Committee
2003	Search Committee (Chair)
2005	Search Committee
2006-2007	Master's Exam Committee
2006-2007	Web Committee
2007	Bioinformatics Search Committee
2007	Search Committee
2011–	Awards Nomination Committee
2012	Search Committee

University Committees, North Carolina State University:

1989-1991	University Courses and Curricula Committee
1997-2000	College of Agriculture and Life Sciences Research Committee
1998	College of Physical and Mathematical Sciences Applied Science Building Committee
1999-2000	Search Committee, Dean of College of Physical and Mathematical Sciences
2004	Selection Committee, Alumni Distinguished Graduate Professors
2006, 2011, 2012	Holladay Medal Selection Committee
2006	Keller Dissertation Award Selection Committee
2006	Alumni Outstanding Research Award Selection Committee
2006	Search Committee, Director, Center for Comparative Medicine and Translational Research
2007-2008	Scholarly Publications Repository Advisory Council
2010-2012	University Research Committee
2010-2012	PAMS Research Advisory Committee
2010	Comprehensiveness and Interdisciplinarity Strategic Planning Task Force
2011	Academic Science Program Task Force

Other Activities, North Carolina State University:

2006–2011	Executive Committee, Center for Comparative Medicine and Translational Research
2007–	Director, Center for Quantitative Sciences in Biomedicine

Department Committees, Harvard School of Public Health:

1994-1995	Curriculum Committee
1994-1995	Seminar Committee (Chair)
1994-1995	Student Advising Committee
1995-1996	Admissions Committee (Chair)
1995-1996	Committee on Curriculum and Qualifying Exam Reform

**Teaching experience**

1982-86	Introduction to Statistics, University of North Carolina at Chapel Hill
1987	Introduction to Probability and Distribution Theory, North Carolina State University
1988-93, 1996	Experimental Statistics for the Biological Sciences I, North Carolina State University
1987-93	Statistical Consulting, North Carolina State University
1988	Intro to Heteroscedastic Regression Models, North Carolina State University
1990	Statistical Consulting, North Carolina State University
1989-93	Experimental Statistics for the Biological Sciences II, North Carolina State University
1992	Topics in Nonlinear Regression, North Carolina State University
1995	Generalized (Non)linear Models, Harvard School of Public Health
1995	Nonlinear Repeated Measurement Models, Harvard School of Public Health
1996-2005, 2007, 2009	Nonlinear Statistical Models, North Carolina State University
1998-2002, 2005, 2007	Applied Longitudinal Data Analysis, North Carolina State University
1998-99, 2003-05 2002	Preparation for Statistical Research, North Carolina State University Inverse Problems in Complex Stochastic Models, North Carolina State University/SAMSI
2009	Mathematical-Statistical Modeling and Analysis of Complex Systems North Carolina State University

**Major grants – Principal Investigator unless noted**

- 1990-1993 National Science Foundation DMS 9003176, Estimation in Nonlinear Heteroscedastic Regression Models (\$27,250)
- 1996-2000 National Institutes of Health R01 AI41214, Statistical Methods for Repeated Measures Data in AIDS (\$375,207, 40% effort)
- 2000–2003 National Institutes of Health R01 CA085848, Flexible Methods for Correlated Biomedical Data (\$539,312, 30% effort)
- 2003–2007 National Institutes of Health R01 CA085848, Flexible Statistical Methods for Biomedical data (\$865,421, 30% effort)
- 2000–2003 National Institutes of Health R01 AI031789, Statistical Methods for AIDS Clinical Trials (PI A. Tsiatis, Department of Statistics, NCSU, \$756,616, 30% effort)
- 2003–2008 National Institutes of Health R37 AI031789, Statistical Methods for AIDS Clinical Trials (PI A. Tsiatis, Department of Statistics, NCSU, \$1,456,343, 40% effort)
- 2000–2008 National Institutes of Health R13 CA090250, Workshop for Junior Biostatisticians in Cancer Research (Co-PI with X. Lin, Department of Biostatistics, Harvard School of Public Health, on behalf of ENAR, \$250,000, 0% effort)
- 2002–2006 National Institutes of Health R01 GM067299, Modeling, Estimation, and Control in HIV Dynamics (PI H.T. Banks, Center for Research in Scientific Computation, NCSU, \$1,535,216, 11.1% effort)
- 2003–2007 National Institutes of Health T15 HL075859, Engaging the Next Generation of Biostatisticians (Co-PI with D. Boos, Department of Statistics, NCSU, \$809,714, 2.5% effort)
- 2004–2007 National Institutes of Health R21 DA019800, Methodology for Adaptive Treatment Strategies (PI S.A. Murphy, Department of Statistics, University of Michigan, \$223,670, 5% effort)
- 2005–2006 National Institutes of Health P01 AI64518, Center for AIDS Research Biostatistics and Computational Biology Core (PI T. Kepler, Department of Biostatistics and Bioinformatics, Duke University, \$142,092, 5% effort)
- 2006–2011 National Institutes of Health T32 HL079896, Integrated Biostatistical Training for CVD Research (\$661,340, 10% effort)
- 2006–2012 National Institutes of Health R01 AI071915, HIV Mathematical/statistical Modeling to Inform Design of HIV Clinical Trials (PI H.T. Banks, Center for Research in Scientific Computation, NCSU, \$3,495,847, 1.0 calendar months effort)
- 2007-2010 National Institutes of Health T15 HL075859, Engaging the Next Generation of Biostatisticians (Co-PI with D. Boos, Department of Statistics, NCSU, \$758,328, 5% effort)

- 2007–2009 Morris Animal Foundation, Methylprednisolone Sodium Succinate and Polyethylene Glycol in Canine Spinal Cord Injury (PI N. Olby, Department of Clinical Sciences, NCSU College of Veterinary Medicine, \$79,920, 0.0 person months effort)
- 2007–2011 National Institutes of Health R01 CA085848, Flexible Statistical Methods for Biomedical Data (\$1,155,549, 1.8 calendar months effort)
- 2008–2013 National Institutes of Health R37 AI031789, Statistical Methods for AIDS Clinical Trials (PI A. Tsiatis, Department of Statistics, NCSU, \$1,797,850, 2.7 calendar months effort; five year MERIT award extension)
- 2008–2013 National Institutes of Health UL1 RR025747, UNC Clinical and Translational Science Award (PI M.S. Runge, School of Medicine, UNC-Chapel Hill, \$346,375 for NCSU subcontract, 0.3 calendar months effort)
- 2009–2012 National Institutes of Health T15 HL097621, Engaging, Inspiring, and Preparing the Next Generation of Biostatisticians (\$755,078, 0.38 calendar months effort)
- 2009–2012 National Institutes of Health NIAAA Contract 275200900019C-2-0-1, Mechanisms of Behavior Change Initiation (MOBCI) for Drinking Behavior (PI, J. Morgenstern, Research Foundation, for Mental Hygiene, Inc., Columbia University, \$1,622,412, 0.05 calendar months effort)
- 2010–2015 National Institutes of Health P01 CA142538, Statistical Methods for Cancer Clinical Trials (PIs: M. Kosorok, Department of Biostatistics, UNC-Chapel Hill; M. Davidian; and S. George, Department of Biostatistics and Bioinformatics, Duke University, \$12,197,205, 4.5 calendar months effort)
- 2011–2016 National Institutes of Health T32 HL079896, Integrated Biostatistical Training for CVD Research (\$1,046,495, 0.9 calendar months effort)
- 2011–2015 National Institutes of Health R01 CA085848, Flexible Statistical Methods for Biomedical Data (\$1,022,876, 1.8 calendar months effort)

**Pending grants – Principal Investigator unless noted**

None.

**Doctoral theses directed**

1. Bruce Belanger (Ph.D., September 1994, N.C. State University)  
(Dr. Belanger won one of the top three student prizes awarded by ENAR for a paper from his dissertation, 1994)
2. Qi Zeng (Sc.D., June 1996, HSPH)  
(Dr. Zeng won the David P. Byar Young Investigator Award given by the Biometrics Section of ASA, a student travel award from ENAR, and a student paper award from the Biopharmaceutical Section of ASA for papers from her dissertation, 1996)
3. Karen Higgins (Sc.D., July 1996, HSPH)

- (Dr. Higgins won a student paper award from the Biopharmaceutical Section of ASA for a paper from her dissertation, 1996)
4. Beow Yeap (Sc.D., August 1998, HSPH)  
(Dr. Yeap won the John Van Ryzin Award given by ENAR for the top student paper for a paper from her dissertation, 1998)
  5. Ann Oberg (Ph.D. August 1999, N.C. State University)  
(Dr. Oberg won a student travel award from ENAR for a paper from her dissertation, 1999)
  6. John Szumiloski (Ph.D. October 1999, N.C. State University)
  7. Hyejin Ko (Ph.D. December 1999, N.C. State University)  
(Dr. Ko won a student travel award from ENAR for a paper from her dissertation, 1999)
  8. Alan Hartford (Joint with John Monahan) (Ph.D. April 2000, N.C. State University)
  9. Jared Lunceford (Joint with Anastasios Tsiatis) (Ph.D. August 2001, N.C. State University)  
(Dr. Lunceford won a student travel award from the Biometrics Section of ASA for a paper from his dissertation, 2001, and the John Van Ryzin Award given by ENAR for the top student paper for a paper from his dissertation, 2002)
  10. Junliang Chen (Joint with Daowen Zhang) (Ph.D. December 2001, N.C. State University)
  11. Xiao Song (Joint with Anastasios Tsiatis) (Ph.D. May 2002, N.C. State University) (Dr. Song won a student travel award from the Biopharmaceutical Section of ASA for a paper from her dissertation, 2001)
  12. Selene Leon (Joint with Anastasios Tsiatis) (Ph.D. August 2003, N.C. State University)
  13. Erning Li (Joint with Daowen Zhang) (Ph.D. August 2004, N.C. State University) (Dr. Li won a student travel award from ENAR for a paper from her dissertation, 2003)
  14. Jiang Lin (Joint with Daowen Zhang) (Ph.D. December 2004, N.C. State University)
  15. Xianzheng Huang (Joint with Leonard Stefanski) (Ph.D. August 2006, N.C. State University)  
(Dr. Huang won a student travel award from ENAR for a paper from her dissertation, 2005)
  16. Kirsten Doehler (Ph.D. August 2006, N.C. State University)
  17. Mandy Bergquist (Ph.D. December 2006, N.C. State University)
  18. Lihua Tang (Ph.D. May 2008, N.C. State University)
  19. Min Zhang (Joint with Anastasios Tsiatis) (Ph.D. May 2008, N.C. State University) (Dr. Zhang won a student travel award from ENAR for a paper from her dissertation, 2008)
  20. Laine Elliott Thomas (Joint with Leonard Stefanski) (Ph.D. August 2009, N.C. State University)

21. Weihua Cao (Joint with Anastasios Tsiatis) (Ph.D. December 2009, N.C. State University)
22. Phillip Schulte (Joint with Anastasios Tsiatis) (Ph.D. May 2012, N.C. State University)
23. Shuai Yuan (Joint with Hao Helen Zhang) (Ph.D. May 2012, N.C. State University)
24. Baqun Zhang (Joint with Anastasios Tsiatis) (Ph.D. expected August 2012, N.C. State University)
25. David Vock (Joint with Anastasios Tsiatis) (Ph.D. expected August 2012, N.C. State University) (Mr. Vock won the student paper award from the Biopharmaceutical Section of ASA for a paper from his dissertation, 2011)

## Bibliography

### Books and monographs

1. Davidian, M. and Giltinan, D.M. (1995) *Nonlinear Models for Repeated Measurement Data*. London: Chapman & Hall.
2. Fitzmaurice, G., Davidian, M., Verbeke, G., and Molenberghs, G. (eds). (2009) *Longitudinal Data Analysis*. Boca Raton: Chapman & Hall/CRC Press.

### Peer-reviewed publications

1. Davidian, M. and Carroll, R.J. (1987). Variance function estimation. *Journal of the American Statistical Association* **82**, 1079–1091.
2. Davidian, M. and Carroll, R.J. (1988). A note on extended quasi-likelihood. *Journal of the Royal Statistical Society, Series B* **50**, 74–82.
3. Davidian, M., Carroll, R.J., and Smith, W. (1988). Variance functions and the minimum detectable concentration in assays. *Biometrika* **75**, 549–556.
4. Davidian, M. (1990). Estimation of variance functions in assays with possibly unequal replication and nonnormal data. *Biometrika* **77**, 43–54.
5. Davidian, M. and Haaland, P. (1990). Regression and calibration with nonconstant error variance. *Chemometrics and Intelligent Laboratory Systems* **9**, 231–248.
6. Davidian, M. and Gupta, B.S. (1991). The use of regression analysis in nonwovens research. *Proceedings of the TAPPI 1991 Nonwovens Conference*, Atlanta, Georgia: TAPPI Press, 27–33.
7. Rives, D.V., Davidian, M., and Ley, D.H. (1991). Infectious bursal disease virus titers may be misleading. *Breakthrough, North Carolina Cooperative Extension Service* **15**:2.
8. Davidian, M. and Gallant, A.R. (1992). Smooth nonparametric maximum likelihood for population pharmacokinetics, with application to quinidine. *Journal of Pharmacokinetics and Biopharmaceutics* **20**, 529–556.
9. Davidian, M. and Giltinan, D.M. (1993). Some general estimation methods for nonlinear mixed effects models. *Journal of Biopharmaceutical Statistics* **3**, 23–55.

10. Davidian, M. and Giltinan, D.M. (1993). Some simple methods for estimating intraindividual variability in nonlinear mixed effects models. *Biometrics* **49**, 59–73.
11. Davidian, M. and Giltinan, D.M. (1993). Analysis of repeated measurement data using the nonlinear mixed effects model. *Chemometrics and Intelligent Laboratory Systems* **20**, 1–24.
12. Davidian, M. and Gallant, A.R. (1993). The nonlinear mixed effects model with a smooth random effects density. *Biometrika* **80**, 475–488.
13. Giltinan, D.M. and Davidian, M. (1994). Assays for recombinant proteins: A problem in nonlinear calibration. *Statistics in Medicine*, **13**, 1165–1179.
14. Yuh, L., Beal, S.L., Davidian, M., Harrison, F., Hester, A., Kowalski, K., Lindstrom, M., Vonesh, E., and Wolfinger, R. (1994). Population pharmacokinetic/pharmacodynamic methodology and applications: a bibliography. *Biometrics* **50**, 566–575.
15. Noga, E.J., Engel, D.P, Arroll, T.W., McKenna, S., and Davidian, M. (1994). Low serum antibacterial activity coincides with increased prevalence of shell disease in blue crabs *Callinectes sapidus*. *Diseases of Aquatic Organisms* **19**, 121–128.
16. Nelson, P.R., Sellon, R., Novotney, C., Devera, C., Davidian, M., English, R., Tompkins, M., and Tompkins, W. (1995). Therapeutic effects of diethylcabamazine and 3'-azido-3'-deoxythymidine on feline leukemia virus lymphoma formation. *Veterinary Immunology and Immunopathology* **46**, 181–194.
17. Belanger, B.A., Davidian, M., and Giltinan, D.M. (1996). The effect of variance function estimation on nonlinear calibration intervals for immunoassay. *Biometrics* **52**, 192–210.
18. Jacobson, J., Davidian, M., Rainey, P.M., Hafner, R., van der Horst, C., and Huft, B.J. (1996). Pyrimethamine pharmacokinetics in HIV-positive patients seropositive for *Toxoplasma gondii*. *Antimicrobial Agents and Chemotherapy* **40**, 1360–1365.
19. Trettin, C.C., Davidian, M., Jurgensen, M.F., and Lea, R. (1996). Organic matter decomposition following harvesting and site preparation of a boreal, forested wetland. *Soil Science Society of America Journal* **60**, 1994–2003.
20. Liu, M. N., Foegeding, E.A., and Davidian, M. (1996) Denaturation and aggregation of chicken myosin isoforms. *Journal of Agricultural and Food Chemistry* **44**, 1435–1440.
21. Wang, N. and Davidian, M. (1996). A note on covariate measurement error in nonlinear mixed effects models. *Biometrika* **83**, 801–812.
22. Zeng, Q. and Davidian, M. (1997). Bootstrap adjusted calibration confidence intervals for immunoassay. *Journal of the American Statistical Association* **92**, 278–290.
23. Higgins, K.M., Davidian, M., and Giltinan, D.M. (1997) A two-step approach to measurement error in time-dependent covariates in nonlinear mixed effects models. *Journal of the American Statistical Association* **92**, 436–448.
24. Zeng, Q. and Davidian, M. (1997). Testing homogeneity of intra-run variance parameters in immunoassay. *Statistics in Medicine* **16**, 1765–1776.
25. Zeng, Q. and Davidian, M. (1997). Calibration inference based on multiple runs of an immunoassay. *Biometrics* **53**, 163–175.

26. Higgins, K.M., Davidian, M., Chew, G., and Burge, H. (1998). The effect of serial dilution error on calibration inference for immunoassay. *Biometrics* **54**, 336–348.
27. Smith, A.E., Evans, M.V., and Davidian, M. (1998). Statistical properties of fitted estimates of apparent in vivo metabolic constants obtained from gas uptake data: I. lipophilic and slowly metabolized VOCs. simulation approach. *Inhalation Toxicology* **10**, 383–409.
28. Hu, P., Tsiatis, A.A., and Davidian, M. (1998). Estimating the parameters in the Cox model when covariate variables are measured with error. *Biometrics* **54**, 1407–1419.
29. Davidian, M. (1999). Invited discussion of “The Bayesian approach to population pharmacokinetic -pharmacodynamic modeling” by Wakefield, Aarons, and Racine-Poon. In *Case Studies in Bayesian Statistics, Volume IV*, Gatsonis, C., Kass, R.E., Carlin, B., Carriquiry, A., Gelman, A., Verdinelli, I., and West M. New York: Springer-Verlag, 257–263.
30. Betts, M.R., Krowla, J.F., Kepler, T.B., Davidian, M., Christopherson, C., Kwok, S., Louie, L., Eron, J., Sheppard, H., Frelinger, J.A. (1999). Human immunodeficiency virus Type 1 specific cytotoxic T lymphocyte activity is inversely correlated with HIV Type 1 viral load in HIV Type 1 infected long-term survivors. *AIDS Research and Human Retroviruses* **15**, 1219–1228.
31. Oberg, A.L. and Davidian, M. (2000). Estimating data transformations in nonlinear mixed effects models. *Biometrics* **56**, 65–72.
32. Hartford, A. and Davidian, M. (2000). Consequences of misspecifying distributional assumptions in nonlinear mixed effects models. *Computational Statistics and Data Analysis* **34**, 139–164.
33. Ko, H. and Davidian, M. (2000). Correcting for measurement error in individual-level covariates in nonlinear mixed effects models. *Biometrics* **56**, 368–375.
34. Neumann, A. U., Lam, N. P., Dahari, H., Davidian, M., Wiley, T. E., Mika, B. P., Perelson, A. S., and Layden, T. J. (2000). Differences in viral dynamics between genotypes 1 and 2 of hepatitis C virus. *Journal of Infectious Diseases* **182**, 28–35.
35. Yeap, B.Y. and Davidian, M. (2001). Robust two-stage estimation in hierarchical nonlinear models. *Biometrics* **57**, 266–272.
36. Tsiatis, A.A. and Davidian, M. (2001). A semiparametric estimator for the proportional hazards model with longitudinal covariates measured with error. *Biometrika* **88**, 447–458.
37. Zhang, D. and Davidian, M. (2001). Linear mixed models with flexible distributions of random effects for longitudinal data. *Biometrics* **57**, 795–802.
38. Altan, S., Manola, A., Davidian, M., and Raghavarao, D. (2001) Constrained four parameter logistic model. In *The Design and Analysis of Potency Assays for Biotechnology Products*, F. Brown and A. Mire-Sluis, eds. Dev. Biol Karger: Basel, v. 107, pp. 71–76.
39. Davidian, M. (2001). Dose calibration. In *Encyclopedia of Environmetrics*, A. El-Shaarwari and W. Piegorisch, eds. John Wiley and Sons: New York.
40. Lunceford, J., Davidian, M., and Tsiatis, A.A. (2002). Estimation of the survival distribution of treatment regimes in two-stage randomization designs in clinical trials. *Biometrics* **58**, 48–57.

41. Tsiatis, A.A., Davidian, M., and McNeney, B. (2002). Multiple imputation methods for testing treatment differences in survival distributions with missing cause of failure. *Biometrika* **89**, 238–244.
42. Chen, J., Zhang, D., and Davidian, M. (2002). Generalized linear mixed models with flexible distributions of random effects for longitudinal data. *Biostatistics* **3**, 347–360.
43. Song, X., Davidian, M., and Tsiatis, A.A. (2002). An estimator for the proportional hazards model with multiple longitudinal covariates measured with error. *Biostatistics* **3**, 511–528.
44. Batchelor, W.B., Tolleson, T., Larsen, R., Hutchison, J., Mantell, R., Huang, Y., Davidian, M., Zhang, D., Sketch, M., Ohman, M.E., Zidar, J.P., Gretler, D., Dibattiste, P., Califf, R.M., and Harrington, R.A. (2002). A randomized comparisons of the platelet inhibitory profiles of abciximab, tirofiban, and eptifibatide during percutaneous coronary intervention: the COMPARE study. *Circulation* **106**, 1470–1476.
45. Song, X., Davidian, M., and Tsiatis, A.A. (2002). A semiparametric likelihood approach for joint modeling of longitudinal and time-to-event data. *Biometrics* **58**, 742–753.
46. Leon, S., Tsiatis, A.A., and Davidian, M. (2003). Semiparametric estimation of treatment effect in a pretest-posttest study. *Biometrics* **59**, 1048–1057.
47. Yeap, B.Y., Catalano, P.J., Ryan, L.M., and Davidian, M. (2003). A robust two-stage approach to repeated measurements analysis of chronic ozone exposure in rats. *Journal of Agricultural, Biological, and Environmental Statistics* **8**, 438–454.
48. Davidian, M. and Giltinan, D.M. (2003). Nonlinear models for repeated measures data: An overview and update. Editor's invited paper, *Journal of Agricultural, Biological, and Environmental Statistics* **8**, 387–419.
49. Powell, A.B., Cheshire, R., Laban, E.H., Colvocoress, J., O'Donnell, P., and Davidian, M. (2004). Growth, mortality, and hatchdate distributions of larval and juvenile spotted seatrout, *Cynoscion nebulosus*, in Florida Bay, Everglades National Park. *Fishery Bulletin* **102**, 142–155.
50. Pieper, K.S., Tsiatis, A.A., Davidian, M., Hasselblad, V., Kleiman, N.S., Boersma, E., Chang, W.C., Griffin, J., Armstrong, P.W., Califf, R.M., and Harrington, R.A. (2004). Differential treatment benefit of platelet glycoprotein IIb/IIIa inhibition with percutaneous coronary intervention versus medical therapy for acute coronary syndromes: Exploration of methods. *Circulation* **109**, 641–646.
51. Li, E., Zhang, D., and Davidian, M. (2004). Conditional estimation for generalized linear models when covariates are subject-specific parameters in a mixed model for longitudinal parameters. *Biometrics* **60**, 1–7. PMID:PMC1628348.
52. Bodnar, L., Davidian, M., Siega-Riz, A.M., and Tsiatis, A.A. (2004). Marginal structural models for analyzing causal effects of time-dependent treatments: An application in perinatal epidemiology. *American Journal of Epidemiology* **159**, 926–934.
53. Ma, Y., Genton, M., and Davidian, M. (2004). Linear mixed effects models with semiparametric generalized skew elliptical random effects. In *Skew-Elliptical Distributions and their Applications: A Journey Beyond Normality*. Genton, M. G., Ed. Boca Raton, FL: Chapman & Hall/CRC, 339–358.

54. Tsiatis, A.A. and Davidian, M. (2004). Joint modeling of longitudinal and time-to-event data: An overview. Invited paper, *Statistica Sinica* **14**, 809–834.
55. Zhang, D. and Davidian, M. (2004). Likelihood and conditional likelihood inference for generalized additive mixed models for clustered data. *Journal of Multivariate Analysis* **91**, 90–106.
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59. Davidian, M., Tsiatis, A.A., and Leon, S. (2005). Semiparametric estimation of treatment effect in a pretest-posttest study with missing data (with discussion). *Statistical Science* **20**, 261–301. PMID:PMC2600547.
60. Adams, B.M., Banks, H.T., Davidian, M., Kwon, H.D., Tran, H.T., Wynne, S.N., and Rosenberg, E.S. (2005). HIV dynamics: Data analysis, modeling and treatment protocols. Invited paper, special issue on “Mathematics applied to immunology,” *Journal of Computational and Applied Mathematics* **184**, 10–49.
61. Tsiatis, A.A. and Davidian, M. (2005). Invited discussion of Prentice, R.L., M. Pettinger, and G.L. Anderson, “Statistical issues arising in the Women’s Health Initiative.” *Biometrics* **61**, 933–935.
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65. Rosenberg, E.S., Davidian, M., and Banks, H.T. (2007). Using mathematical modeling and control to develop structured treatment interruption strategies for HIV infection. *Drug and Alcohol Dependence* special supplement issue on “Customizing Treatment to the Patient: Adaptive Treatment Strategies” **88S**, S41-S51. PMID:PMC2001151.
66. Li, E., Zhang, D, and Davidian, M. (2007). Likelihood and pseudo-likelihood methods for semiparametric joint models for a primary response and longitudinal data. *Computational Statistics and Data Analysis* **51**, 5776–5790. PMID:PMC2000853.
67. Tsiatis, A.A. and Davidian, M. (2007). Invited discussion of “Demystifying double robustness: A comparison of alternative strategies for estimating a population mean from incomplete data,” by J.D.Y. Kang and J.L. Schafer. *Statistical Science* **22**, 569–573. PMID:PMC2397555.
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75. Verbeke, G. and Davidian, M. (2009). Joint models for longitudinal data: Introduction and overview. In *Longitudinal Data Analysis: A Handbook of Modern Statistical Methods*, G. Fitzmaurice, M. Davidian, G. Verbeke, and G. Molenberghs (eds). Boca Raton: Chapman & Hall/CRC Press, ch. 13, pp. 319–326.
76. Huang, X., Stefanski, L.A., and Davidian, M. (2009) Latent-model robustness in joint models for a primary endpoint and a longitudinal process. *Biometrics* **65**, 719–727. PMID:PMC2748157.
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80. Serroyen, J., Molenberghs, G., Verbeke, G., and Davidian, M. (2009). Non-linear models for longitudinal data. *The American Statistician* **63**, 378–388. PMID:PMC2774254.
81. Jonsson Funk, M., Westreich, D., Weisen, C., and Davidian, M. (2010). Doubly robust estimation of treatment effects. In *Analysis of Observational Health-Care Data Using SAS*, D. Faries, A. Leon, J.M. Haro, and R. Obenchain (eds). SAS Press, Cary NC, ch. 4.
82. Bang, H. and Davidian, M. (2010). Experimental Statistics for biological sciences. In *Statistical Methods in Molecular Biology*, H. Bang, X.K. Zhou, H.L. Van Epps, and M. Mazumdar (eds). New York: Springer (Humana Press), ch. 1, pp. 3–104.
83. Hawkins, E.C., Clay, L.D., Bradley, J.M., and Davidian, M. (2010). Demographic and historic findings in dogs with chronic cough, including exposure to environmental tobacco smoke. *Journal of Veterinary Internal Medicine* **24**, 825–831.

84. Zhang, M., Tsiatis, A.A., Davidian, M., Pieper, K., and Mahaffey, K. (2011). Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. *Biostatistics* **12**, 258–269. PMID:PMC3062147.
85. Tsiatis, A.A., Davidian, M., and Cao, W. (2011). Improved doubly robust estimation when data are monotonely coarsened, with application to longitudinal studies with dropout. *Biometrics* **67**, 536–545. PMID:PMC3061242.
86. Tsiatis, A.A. and Davidian, M. (2011). Invited discussion of “Connections Between Survey Calibration Estimators and Semiparametric Models for Incomplete Data” by T. Lumley, P.A. Shaw and J.Y. Dai. *International Statistical Review* **79**, 221–230. PMID:PMC3173780.
87. Jonsson Funk, M., Westreich, D., Wiesen, C., and Davidian, M. (2011). Doubly robust estimation of causal effects. *American Journal of Epidemiology* **173**, 761–767.
88. Funk, M.J., Fusco, J.S., Cole, S.R., Thomas, J.C., Porter, K., Kaufman, J.S., Davidian, M., White, A.D., Hartmann, K.E., Eron, J.J., for the CASCADE Collaboration. (2011). Timing of HAART initiation and clinical outcomes among HIV-1 seroconverters. *Archives of Internal Medicine* **171**, 1560–1569.
89. Thomas, L.E., Stefanski, L.A., and Davidian, M. (2011). A moment adjusted imputation method for measurement error models. *Biometrics* **67**, 1461–1470. PMID: PMC3208089.
90. Vock, D.M., Davidian, M., and Tsiatis, A.A. (2012). Mixed model analysis of censored longitudinal data with flexible random effects density. *Biostatistics* **13**, 61–73. PMID:PMC3237332.
91. Molenberghs, G., Kenward, M.G., Aerts, M., Verbeke, G., Tsiatis, A.A., Davidian, M., and Rizopoulos, D. (2012). On random sample size, ignorability, ancillarity, completeness, separability, and degeneracy: Sequential trials, random sample sizes, and Missing data. *Statistical Methods in Medical Research*, in press. NIHMSID:NIHMS335858.
92. Verbeke, G., Fieuws, S., Molenberghs, G., and Davidian, M. (2012). The analysis of multivariate longitudinal data: A review. *Statistical Methods in Medical Research*, in press. NIHMSID:NIHMS350024.
93. Zhang, B., Tsiatis, A.A., Laber, E.B., and Davidian, M. (2012). A robust statistical method for estimating optimal treatment regimes. *Biometrics*, in press.
94. Davidian, M. and Louis, T.A. (2012). Why Statistics? (Editorial) *Science* **336**, 12.
95. Yuan, S., Zhang, H.H., and Davidian, M. (2012). Variable selection for covariate-adjusted semiparametric inference in randomized clinical trials. *Statistics in Medicine*, in press.

#### Manuscripts under review and in progress

1. Vock, D.M., Davidian, M., and Tsiatis, A.A. (2011). SNP\_NLMM: A SAS macro to implement a flexible random effects density for generalized linear and nonlinear mixed models. Submitted to *Journal of Statistical Software*.
2. Ren, Z., Davidian, M., George, S.L., Goldberg, R.M., Tsiatis, A.A., Wright, F.A., and Kosorok, M.R. (2011). Personalized medicine discovery: Past, present, and future. Submitted to *Journal of the National Cancer Institute*.
3. Schulte, P.J., Tsiatis, A.A., Laber, E.B., and Davidian, M.. (2012). Q- and A-learning methods for estimating optimal treatment regimes. Submitted to *Statistical Science*.

4. Milanzi, E., Molenberghs, G., Alonso, A., Kenward, M.G., Verbeke, G., Tsiatis, A.A., and Davidian, M. (2012). Properties of estimators in exponential family settings with observation-based stopping rules. Submitted to *Journal of the American Statistical Association*.
5. Thomas, L.E., Stefanski, L.A., and Davidian, M. (2012). Moment adjusted imputation for multivariate measurement error models. In preparation for *Computational Statistics and Data Analysis*.

Other articles, book reviews, technical reports, and abstracts

1. Rives, D.V., Davidian, M., and Ley, D.H. (1990). Maternal antibodies – a closer look. *Proceedings of the North Carolina Broiler Breeder and Hatchery Management Conference*, 43–45.
2. Davidian, M. and Giltinan, D.M. (1991). Some general methods for estimation in nonlinear mixed effects models. *Proceedings of the Biopharmaceutical Section of the American Statistical Association*, Atlanta, Georgia, 20–29.
3. Davidian, M. and Gallant, A. R. (1992). Nlmix: A program for maximum likelihood estimation of the nonlinear mixed effects model with a smooth random effects density. Department of Statistics, North Carolina State University.
4. Smith, A. E., Davidian, M., Evans, M.V., and Evans, J. S. (1995). Issues in estimating apparent *in vivo* metabolic constants from gas uptake data. *The International Toxicologist, Abstracts of the International Congress of Toxicology*, VII, 89-9-14, July 2–6.
5. Higgins, K., Chew, G., Davidian, M., Milton, D., and Burge, H.A. (1996) *Journal of Allergy and Clinical Immunology* **97** (1), Part 3, 135.
6. Neumann, A.U., Lam, N.P., Davidian, M, Dahari, H., Wiley, T.W., Perelson, A.S., and Layden T.J. (1999). Differences in hepatitis C virus (HCV) dynamics between HCV of genotype 1 and genotype 2. *Hepatology* **3** (4), Part 2, Suppl. S., 121
7. Bodnar, L., Davidian, M., Siega-Riz A., and Tsiatis A. (2002). Marginal structural models for estimating the causal effect of prenatal iron supplementation on risk of postpartum anemia. *American Journal of Epidemiology* **155** (11), Suppl. S., 263.
8. Davidian, M. (2003). Review of *Hierarchical Linear Models: Applications and Data Analysis Methods (2nd ed.)* by S.W. Raudenbush and A.S. Byrk, *Journal of the American Statistical Association* **98**, 767–768.
9. Davidian, M. (2006). Introduction to statistical population modeling and analysis for pharmacokinetic data. Invited white paper for the International Workshop on Uncertainty and Variability in Physiologically Based Pharmacokinetic (PBPK) Models, <http://www.epa.gov/ncct/uvpkm/>.
10. Davidian, M. (2010). Nonlinear mixed effects models. *International Encyclopedia of Statistical Science*, M. Lovric (ed). New York: Springer.
11. Davidian, M. (2012). Emerging trends in biostatistics. Invited article for the AAAS “Cutting Edge,” <http://www.membercentral.aaas.org/articles/emerging-trends-biostatistics>.

**Major invited presentations**

1. Variance function estimation in heteroscedastic regression models. Spring Meeting of the Institute of Mathematical Statistics, Dallas, Texas, March 1987.

2. Variance function estimation in heteroscedastic regression, with application to the analysis of assay data. Department of Statistics, North Carolina State University, March 1988.
3. Recent developments in estimation for heteroscedastic regression models. Departments of Economics, Finance, and Applied Legal Studies, Mathematics, and Agricultural Economics, Mississippi State University, April 1988.
4. Variance function estimation in heteroscedastic regression, with application to the analysis of assay data. Pre-Clinical Statistics Group, Lederle Laboratories, Pearl River, New York, April 1988.
5. Variance function estimation and transformations in regression: an overview. Southeast Regional Conference of Statisticians in the Health Care Industry, Glaxo, Inc., Research Triangle Park, North Carolina, November 1988.
6. An introduction to regression methods for censored normal data. Department of Statistics, North Carolina State University, September 1989.
7. Issues in regression analysis. Burroughs Wellcome Co., Research Triangle Park, North Carolina, December 1989.
8. Estimation of intraindividual variability in pharmacokinetic and assay data analysis. North Carolina Chapter of the American Statistical Association, March 1990.
9. Estimation of intraindividual variability in nonlinear random effects models. Department of Biostatistics, University of North Carolina at Chapel Hill, January 1991.
10. Estimation of intraindividual variability in nonlinear random effects models. Department of Mathematics, University of North Carolina at Charlotte, January 1991.
11. Estimation of intraindividual variability in nonlinear random effects models. Department of Mathematics, University of Virginia, January 1991.
12. Estimation of intraindividual variability in nonlinear random effects models. Department of Statistics, North Carolina State University, January 1991.
13. Variance function estimation in nonlinear regression, with application to calibration. Genentech, Inc., South San Francisco, California, March 1991.
14. The use of regression analysis in nonwovens research. TAPPI Nonwovens Conference, Marco Island, Florida, May 1991.
15. Issues in estimation for nonlinear mixed effects models (with application to population pharmacokinetic modeling). Midwest Biopharmaceutical Statistics Workshop, Muncie, Indiana, May 1991.
16. Some general methods for estimation in nonlinear mixed effects models. Joint Statistical Meetings, August 1991.
17. Estimation in pharmacokinetic data analysis – an overview. Glaxo, Inc., Research Triangle Park, North Carolina, September 1991.
18. The nonlinear mixed effects model with a smooth random effects density. Genentech, Inc., South San Francisco, California, December 1991.
19. The nonlinear mixed effects model with a smooth random effects density. Department of Biostatistics, University of California, San Francisco. December 1991.

20. The nonlinear mixed effects model with a smooth random effects density. Department of Statistics, North Carolina State University, January 1992.
21. The nonlinear mixed effects model with a smooth random effects density. Division of Biometry and Medical Informatics, Duke University Medical Center, Durham, North Carolina, January 1992.
22. The nonlinear mixed effects model with a smooth random effects density. Eli Lilly and Co., Indianapolis, Indiana, May 1992.
23. Smooth nonparametric maximum likelihood estimation for population pharmacokinetics. Joint Statistical Meetings, August, 1992.
24. The nonlinear mixed effects model with a smooth random effects density. CIBA-GEIGY, Summit, New Jersey, August 1992.
25. The nonlinear mixed effects model with a smooth random effects density. Department of Biostatistics, University of North Carolina at Chapel Hill, September 1992.
26. The nonlinear mixed effects model with a smooth random effects density. Department of Biostatistics, University of Michigan, Ann Arbor, October 1992.
27. Smooth nonparametric maximum likelihood estimation for population pharmacokinetics. Pharmacokinetics and Pharmacodynamics Section, St. Jude Children's Research Hospital, Memphis, Tennessee, December 1992.
28. Alternative approaches to estimation in population pharmacokinetics. Centennial International Industrial Pharmacy Conference, College of Pharmacy, University of Texas at Austin, February 1993.
29. Smooth nonparametric maximum likelihood estimation for population pharmacokinetics. Department of Mathematics, University of Virginia, February, 1993.
30. The nonlinear mixed effects model with a smooth random effects density. Department of Biostatistics, Harvard School of Public Health, March 1993.
31. Alternative approaches to estimation in population pharmacokinetics. 94th Annual Meeting of the American Society of Clinical Pharmacology and Therapeutics, Honolulu, Hawaii, March 1993.
32. Smooth nonparametric maximum likelihood estimation for population pharmacokinetics. Department of Statistics, University of Chicago, April 1993.
33. Smooth nonparametric maximum likelihood estimation for population pharmacokinetics. Department of Biostatistics, University of California, Berkeley, May 1993.
34. Smooth nonparametric maximum likelihood estimation in population pharmacokinetics. Biostatistics, Limburgs Universitair Centrum, Belgium, June 1993.
35. Smooth nonparametric maximum likelihood estimation for population pharmacokinetics. Glaxo, Inc., Research Triangle Park, North Carolina, June 1993.
36. Smooth nonparametric maximum likelihood estimation for population pharmacokinetics. Population PK/PD Symposium, 1993 American Association of Pharmaceutical Scientists Annual Meeting, Orlando, Florida, November 1993.

37. The hierarchical nonlinear model in population pharmacokinetic analysis – an overview. International Society for Clinical Biostatistics 15th Meeting, Basel, Switzerland, July 1994.
38. A simple method for handling time-dependent covariates in the nonlinear mixed effects model, with application to pharmacokinetics. Invited paper, Joint Statistical Meetings, August, 1994.
39. The hierarchical nonlinear model in population pharmacokinetic analysis – an overview. Schering-Plough Research Institute, Kenilworth, New Jersey, November 1994.
40. Phase I issues in the statistical literature. Pediatric AIDS Clinical Trials Group Leadership Retreat, Washington, DC, December 1994.
41. Statistical issues in assay development and analysis. Center for Biologics Evaluation and Research, U.S. Food and Drug Administration, Rockville, Maryland, February 1995.
42. Application of semiparametric methods to analysis of the simulated quinidine data. Joint Statistical Meetings, August, 1995.
43. Bootstrap confidence intervals for immunoassay. Biomathematics Department, M.D. Anderson Cancer Center, Houston, Texas, April 1996.
44. Bootstrap confidence intervals for immunoassay. Department of Statistics, Texas A & M University, April 1996.
45. Nonlinear models for repeated measurements—an overview. North Carolina Chapter of the American Statistical Association, December 1996.
46. Nonlinear models for repeated measurements—an overview. SAS Institute, Cary, North Carolina, February 1997.
47. The effects of covariate measurement error in nonlinear mixed effects models. ENAR Spring Meeting, March 1997.
48. Bootstrap confidence intervals for immunoassay. Fred Hutchison Cancer Center, University of Washington, Seattle, May 1997.
49. Invited discussant, 4th Workshop on Bayesian Case Studies, Carnegie-Mellon University, Pittsburgh, September 1997.
50. Bootstrap confidence intervals for immunoassay. Department of Statistics, University of Iowa, October 1997.
51. Covariate measurement error in nonlinear mixed effects models: An overview. Invited paper, Statistics for correlated data: A conference marking the 50th anniversary of the Department of Statistics at Iowa State University. Ames, Iowa, October 1997.
52. Bootstrap confidence intervals for immunoassay. Department of Biostatistics, University of Michigan, Ann Arbor. November 1997.
53. Relaxing the normality assumption on the random effects in nonlinear mixed effects models. Frontier Science and Technology Research Foundation, Chestnut Hill, Massachusetts. December 1997.
54. Covariate measurement error in nonlinear mixed effects models: Two practical problems and practical solutions. Texas A&M University, April 1998.

55. A statistician's view of the draft population pharmacokinetics guidance. Public Discussion on FDA guidances on population PK/PD modeling, Center for Drug Development Science, Georgetown University, April 1998.
56. Analysis of HIV dynamic data using hierarchical nonlinear models. Theoretical Biology and Biophysics Group, Los Alamos National Laboratory, Los Alamos, New Mexico, July 1998.
57. Population and individual bioequivalence: A view from the Pharmaceutical Science Advisory committee. Joint Statistical Meetings, Dallas, Texas, August 1998.
58. Bootstrap confidence intervals for immunoassay. Department of Biostatistics, University of North Carolina at Chapel Hill, September 1998.
59. Modeling of the pathogenesis of HIV and HCV and the selection of surrogate endpoints (with A.S. Perelson), Research Needs for the Design and Analysis of Surrogate Endpoints in Clinical Trials, Workshop sponsored by Office of Science Policy, National Institutes of Health, Potomac, Maryland, December, 1998.
60. Nonlinear models for repeated measurements – A review. New Jersey Chapter of the American Statistical Association, February, 1999.
61. Statistical methods for pharmacokinetic analysis. Biometrics Unit, Cornell University, May, 1999.
62. Nonlinear models for repeated measurements - A review. Invited talk, Gertrude M. Cox Statistics Conference, September, 1999.
63. Statistical modeling of pharmacokinetics (and pharmacodynamics) - an overview. Biostatistics retreat, Robert Wood Johnson Pharmaceutical Research Institute, November, 1999.
64. A semiparametric estimator for the proportional hazards model with longitudinal covariates measured with error. Institute of Statistics and Decision Sciences, Duke University, March, 2000.
65. A semiparametric estimator for the proportional hazards model with longitudinal covariates measured with error. Joint Statistical Meetings, Indianapolis, Indiana, August 2000.
66. A semiparametric estimator for the proportional hazards model with longitudinal covariates measured with error. Department of Biostatistics, University of Rochester, Rochester, New York, April 2001.
67. A semiparametric estimator for the proportional hazards model with longitudinal covariates measured with error. Department of Biostatistics, University of North Carolina at Chapel Hill, September 2001.
68. An introduction to causal inference. Department of Biostatistics and Bioinformatics, Duke University, November 2001.
69. Adjustment for confounding in observational studies – causal inference perspective. Department of Biostatistics and Bioinformatics, Duke University, January 2002.
70. A semiparametric likelihood approach for linear mixed, generalized linear mixed, and joint longitudinal-survival models with flexible random effects distribution. International Conference on Current Advances and Trends in Nonparametric Statistics, Crete, Greece, July 2002.

71. “Semiparametric” approaches for inference in joint models for longitudinal and time-to-event data. Department of Statistics, University of Florida, November 2002.
72. As time goes by: An introduction to methods for analysis of longitudinal data. Challis Distinguished Lecture, Department of Statistics, University of Florida, November 2002.
73. “Semiparametric” approaches for inference in joint models for longitudinal and time-to-event data. 18th International Workshop on Statistical Modelling, Leuven, Belgium, July 2003.
74. Introductory Overview Lecture on Longitudinal Data Analysis, Institute of Mathematical Statistics, Joint Statistical Meetings, San Francisco, California, August 2003.
75. What’s in between dose and response? Pharmacokinetics, pharmacodynamics, and statistics. Myrto Lefkopoulou Distinguished Lecture, Department of Biostatistics, Harvard School of Public Health, September 2003.
76. Joint modeling of longitudinal and primary endpoint data. Department of Psychology, University of North Carolina at Chapel Hill, December 2003.
77. What’s in between dose and response? Pharmacokinetics, pharmacodynamics, and statistics. Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, March 2004.
78. Nonlinear mixed effects models: An overview and update. *JABES* Editor’s Invited Session, International Biometric Conference, Cairns, Australia, July 2004.
79. Introduction to nonlinear mixed effects models. Statistics Conference, GlaxoSmithKline, Research Triangle Park, North Carolina, October 2004.
80. What’s in between dose and response? Pharmacokinetics, pharmacodynamics, and statistics. Departments of Statistics and Biostatistics, University of Michigan, October 2004.
81. Semiparametric estimation of treatment effect in a pretest-posttest study. Seventh Annual Winter Workshop (Longitudinal Data Analysis), Department of Statistics, University of Florida, January 2005.
82. Semiparametric estimation of treatment effect in a pretest-posttest study. Department of Biostatistics and Bioinformatics, Duke University Medical Center, January 2005.
83. Semiparametric estimation of treatment effect in a pretest-posttest study. National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina, September 2005.
84. Adaptive treatment strategies in cancer research. Symposium on Causal Inference, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, January 2006.
85. Introduction to modeling and analysis of longitudinal data. Introductory Lecture, ENAR Spring Meeting, Tampa, Florida, March 2006.
86. What’s in between dose and response? Pharmacokinetics, pharmacodynamics, and statistics. Bernard Greenberg Lecture, Department of Biostatistics, University of North Carolina at Chapel Hill, May 2006.
87. Semiparametric estimation of treatment effect in a pretest-posttest study. Bernard Greenberg Lecture, Department of Biostatistics, University of North Carolina at Chapel Hill, May 2006.
88. Inference for dynamic treatment regimes for two-stage clinical trials (and more generally). Bernard Greenberg Lecture, Department of Biostatistics, University of North Carolina at Chapel Hill, May 2006.

89. Some new methods for latent variable models and survival analysis. Bernard Greenberg Lecture, Department of Biostatistics, University of North Carolina at Chapel Hill, May 2006.
90. Invited discussion of papers on “Handling Covariates Measured with Error,” International Biometric Conference, Montreal, Canada, July 2006.
91. Inference for dynamic treatment regimes for two-stage clinical trials (and more generally). Institute of Statistics and Decision Sciences, Duke University, September, 2006.
92. Statistical population modeling and analysis of PK data: An introduction. International Workshop on Uncertainty and Variability in Physiologically Based Pharmacokinetic (PBPK) Models, US Environmental Protection Agency, Research Triangle Park, North Carolina, November 2006.
93. Inference for dynamic treatment regimes for two-stage (cancer) clinical trials. Department of Biostatistics and Bioinformatics, Duke University, November 2006.
94. An introduction to dynamic treatment regimes. ENAR Spring Meeting, Atlanta, Georgia, March 2007.
95. Improving efficiency of inferences in randomized clinical trials using auxiliary covariates. Statistics Group, RAND, Pittsburgh, Pennsylvania, May 2007.
96. The role of statistical principles in biomedical modeling. Plenary lecture, Atlantic Coast Conference on Mathematics in the Life and Biological Sciences, Virginia Tech, Blacksburg, Virginia, May 2007.
97. An introduction to dynamic treatment regimes. International Society for Clinical Biostatistics 28th Annual Conference, Alexandroupolis, Greece, August 2007.
98. Novel study designs for treatment strategies that reflect actual clinical practice: Issues they raise regarding implementation and analysis. Duke Clinical Research Institute Research Conference, Duke University, August 2007.
99. Toward individualizing treatment to the patient: An introduction to dynamic treatment regimes. Janet L. Norwood Award Lecture, University of Alabama at Birmingham, Birmingham, Alabama, September 2007.
100. Using mathematical-statistical modeling to inform the design of HIV treatment strategies and clinical trials. 2007 FDA/Industry Statistics Workshop, “Translating Innovation into Practice through Effective Partnerships,” Arlington, Virginia, September 2007.
101. An introduction to dynamic treatment regimes. Edward P. Fitts Department of Industrial and Systems Engineering Healthcare Engineering Seminar Series, North Carolina State University, November 2007.
102. Using mathematical-statistical modeling to inform the design of HIV treatment strategies and clinical trials (with E.S. Rosenberg). ENAR Spring Meeting, Crystal City, Virginia, March 2008.
103. Improving efficiency of inferences in randomized clinical trials using auxiliary covariates. Department of Biostatistics, Emory University, March 2008.
104. An introduction to dynamic treatment regimes. Georgia Chapter of the American Statistical Association, Atlanta, Georgia, March 2008.

105. The role of statistical principles in biomedical modeling. Biomathematics Seminar, North Carolina State University, April 2008.
106. Improving efficiency of inferences in randomized clinical trials using auxiliary covariates. North Carolina Chapter of the American Statistical Association, Research Triangle Park, North Carolina, May 2008.
107. Using mathematical-statistical modeling to inform the design of HIV treatment strategies and clinical trials (with E.S. Rosenberg). Division of AIDS, National Institute of Allergy and Infectious Diseases, Rockville, Maryland, January 2009.
108. Improving efficiency of inferences in randomized clinical trials using auxiliary covariates. Biostatistics Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute, Rockville, Maryland, April 2009.
109. Improving efficiency of inferences in randomized clinical trials using auxiliary covariates. Society for Clinical Trials 30th Annual Meeting, Atlanta, Georgia, May 2009.
110. Mathematical-statistical modeling to inform the design of HIV treatment strategies and clinical trials. 5th Conference of the Eastern Mediterranean Region of the International Biometric Society (EMR-IBS), Istanbul, Turkey, May 2009.
111. Quantitative modeling for design of treatment strategies and clinical trials. Biostatistics Seminar Series for Clinical and Translational Science Investigators, University of North Carolina at Chapel Hill, November 2009.
112. An introduction to dynamic treatment regimes. The 8th International Conference on Health Policy Statistics, Washington, DC, January 2010.
113. A statistician's adventures in collaboration: Designing better treatment strategies. IMS Medalion Lecture, ENAR Spring Meeting, New Orleans, Louisiana, March 2010.
114. Improving efficiency of inferences in randomized clinical trials using auxiliary covariates. Department of Biostatistics, Boston University, April 2010.
115. Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. Department of Biostatistics, University of Washington, April 2010.
116. Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. Department of Statistics, Rutgers University, October 2010.
117. Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. Office of Biostatistics, National Heart, Lung, and Blood Institute, January 2011.
118. Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. Department of Statistics, George Mason University, February 2011.
119. Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. Washington Statistical Society, April 2011.

120. Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. Department of Statistics, Colorado State University, April 2011.
121. Designing better treatment strategies via mathematical-statistical modeling. NC Symposium for Women in Mathematics and Statistics, North Carolina State University, April 2011.
122. Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. 5th Annual Probability and Statistics Day, Departments of Mathematics and Statistics, University of Maryland, Baltimore County, April 2011.
123. Inference on treatment effects from a randomized clinical trial in the presence of premature treatment discontinuation: The SYNERGY trial. 2011 International Indian Statistical Association Conference on Probability, Statistics, and Data Analysis, Raleigh, North Carolina, April 2011.
124. More robust doubly robust estimators. 6th Conference of the Eastern Mediterranean Region of the International Biometric Society (EMR-IBS), Crete, Greece, May 2011.
125. A sampling of IMPACT research: Methods for analysis with dropout and identifying optimal treatment regimes. Southern Regional Council on Statistics (SRCOS) Summer Research Conference, McCormick, South Carolina, June 2011.
126. More robust doubly robust estimators. Department of Biostatistics, University at Buffalo, SUNY, and Buffalo-Niagra Chapter of the ASA, September 2011.
127. More robust doubly robust estimators. Department of Statistics, University of Florida, September 2011.
128. A robust method for estimating optimal treatment regimes. First Annual IMPACT Symposium, "New Paradigms in Clinical Trial Methodology," Research Triangle Park, North Carolina. November 2011.
129. Engaging, inspiring, and training the next generation: Past successes, future challenges and opportunities. Presidential Invited Address, ENAR Spring Meeting, Washington DC, April 2012.
130. More robust doubly robust estimators. Myra Samuels Memorial Lecture. Department of Statistics, Purdue University, April 2012.

#### Shortcourses, Workshops, and Tutorials

1. Biostatistical applications of nonlinear mixed effects modeling (with D. Giltinan; 1 day shortcourse). Joint Statistical Meetings, Orlando, Florida, August 1995.
2. An introduction to nonlinear mixed effects modeling (1 day shortcourse). Wyeth-Ayerst Research, Pearl River, New York, November 1995.
3. Extending the linear mixed effects model (with D. Giltinan; 2 day shortcourse). WNAR, Pullman, Washington, June 1996.
4. An introduction to nonlinear mixed effects modeling (1 day shortcourse). Procter and Gamble, Cincinnati, Ohio, October 1996.

5. Nonlinear mixed models for repeated measurement data (with D. Giltinan and E. Vonesh; 3 day shortcourse). Biopharmaceutical Applied Statistics Symposium. San Diego, California, December 1996.
6. Nonlinear mixed models for repeated measurement data (2 1/2 day shortcourse). University of South Florida, Tampa, March 1997.
7. An introduction to mixed effects models (2 day shortcourse). Duke University Medical Center, Durham, North Carolina, May 1998.
8. Statistics for geneticists II (3 day shortcourse) as part of the Summer Institute in Statistical Genetics, North Carolina State University, Raleigh, North Carolina, June 1997–2000.
9. Statistical modeling of pharmacokinetics – An overview (1 day short course). Sanofi-Synthelabo Research, Malvern, Pennsylvania, August 2000.
10. An introduction to nonlinear mixed-effects models (1/2 day shortcourse). Non-Clinical Statistics Symposium, Leuven, Belgium, September 2008.
11. An introduction to nonlinear mixed effects models and PK/PD analysis (2 hour webinar). ASA Biopharmaceutical Section, April 2010.
12. Essentials for success in research: Everything you ever wanted to know about NIH grants and publishing in biostatistical journals (Tutorial). ENAR Spring Meeting, Miami, Florida, March 2011.