#### **BRUCE LEVIN – Curriculum Vitae**

**Date of preparation**: August 22, 2020

# Personal data:

Birthdate: March 14, 1948 Birthplace: New York City

Citizenship: U.S.A.

Marital Status: Married, two children, three grandchildren

# **Academic training**:

Columbia University 1968 B.A. (Mathematics) Harvard University 1972 M.A. (Mathematics)

Harvard University 1974 Ph.D. (Applied Mathematics/Statistics)

Thesis sponsor: Arthur P. Dempster

Dissertation title: Maximum Likelihood Estimation in Compound Multinomial and

Compound Poisson Distributions.

Citation: Levin, B. and Reeds, J. (1977). Compound Multinomial Likelihood

Functions are Unimodal: Proof of a Conjecture of I.J. Good.

Annals of Statistics 5:79–87.

#### Professional organizations and societies:

American Public Health Association American Statistical Association (Fellow) Associate Member, CSICOP Institute of Mathematical Statistics International Biometric Society Sigma Xi Society for Clinical Trials

#### **Academic Appointments:**

1967–1968	Teaching Assistant, Columbia University
1969-1974	Teaching Fellow and Research Assistant, Harvard University
1974–1979	Assistant Professor of Mathematical Statistics, Columbia University
1976–1979	Assistant Professor of Mathematical Statistics and Public Health (Biostatistics), Columbia University
1979-1982	Assistant Professor of Public Health (Biostatistics)

1982–1983	Assistant Professor of Clinical Public Health (Biostatistics)
1983-1985	Associate Professor of Clinical Public Health (Biostatistics)
1979–1997	Senior Research Scientist, New York State Psychiatric Inst.
1985–1992	Associate Professor of Clinical Public Health (Biostatistics) (with tenure of title)
1992–1994	Associate Professor of Public Health (Biostatistics) (with tenure)
1993–1998	Deputy Head, Division of Biostatistics, Columbia University School of Public Health.
1998-2000	Acting Head, Division of Biostatistics, Columbia School of Public Health
1994-2001	Professor of Public Health (Biostatistics) (with tenure)
2001-presen	Professor of Biostatistics (with tenure)
2000-2011	Chair, Department of Biostatistics
<b>Honors</b>	
1964-1968	Pulitzer Free Scholarship to Columbia College
1968	Phi Beta Kappa
1968	B.A. summa cum laude, Columbia College
1964-1968	New York State Regents Scholarship
1968-1970	New York State Regents College Teaching Fellowship
1968-1970	Teaching Fellowship, Harvard University
1968-1974	Woodrow Wilson Fellowship
2001	Fellow of the American Statistical Association
2008	Award Winner of the Statistics Section of the American Public Health Association
2011	Biostatistics Colloquium renamed The Levin Lecture Series in my honor

# **Special appointments**

1990	Biostatistician on Special Review Committee for National Cancer Institute RFA 90-CA-03DCT Small Grants to Stimulate Correlative Laboratory Studies and Innovative Clinical Trials.
1991	IRG member for Tropical Medicine and Parasitology Study Section AHR (TMP-AHR-F1) (February and October sections).
1991	Consultant to NINDS program staff regarding preparation of a workscope for RFP/BAA #NIH-NINDS-90-06, establishing two Clinical Research Centers for Neonatal Seizure (April).
1992-2002	Consulting Editor for Statistics, American Journal of Public Health.
1998–1999	Program Chair for Spring 1999 Meetings of the International Biometrics Society, Eastern North American Region, Atlanta, GA.
1999	Consultant to National Advisory Mental Health Council's Clinical Treatment and Services Research Workgroup, National Institute of Mental Health.
2000	National Academy of Sciences Institute of Medicine Committee on the Design and Analysis of Small Clinical Trials.
2002-2015	NINDS Parkinson's Disease Neuroprotection Trials Oversight Board.
2003-2005	Co-editor for Chance Magazine's statistics in law column, Chance at the Bar.
2003-present	Statistical consultant for Brad H court settlement monitors.
2005–2009	Member of Federal Advisory Committee for The National Children's Study, NICHD.
2006-2009	Scientific Review Committee, Parkinson's Study Group.
2008-present	Statistician for Data and Safety Monitoring Committee for the SURE-PD (Safety of Urate Elevation in Parkinson's Disease) Trial.
2009	Co-Chair, "Scientific Advances in Adaptive Clinical Trial Design" Workshop (NIH-funded workshop, November 16-17, 2009, Bethesda, MD).
2009-present	Scientific Review Committee, Huntington's Study Group.
2009–2011	Chair, Data and Safety Monitoring Committee for the CHIRP (CHoline in InflammatoRY Pain) Trial (Pamela Flood, P.I.)
2010–2012	Statistician for Data and Safety Monitoring Board for the Double-Blind Placebo Controlled Study Of Rifampicin In Multiple System Atrophy.

2015–2017 Member of NIH Recurring Special Emphasis Panels on Alzheimer's Disease

Pilot Clinical Trials.

2016–present Chair, Data and Safety Monitoring Committee for the SWERVE trial

(an intervention to reduce substance use and sexual risk taking and to

encourage repeat HIV testing or linkage to HIV care, Rob Stephenson, P.I.,

University of Michigan School of Nursing, Ann Arbor).

2017–present Chair, Data and Safety Monitoring Committee for the BREATHE trial

(to develop and pilot a randomized controlled trial to among urban minority

adults with asthma to improve care and quality of life).

# **Important invited lectureships**

1. Sequential Medical Trials with Finite Patient Horizon
Presented at New York Statistics Discussions Group (March 1978).

- 2. Selecting the Highest Probability in Binomial and Multinomial Trials
  Presented at the Rutgers Statistics Day Conference (April 1982).
- 3. Logistic Regression

Presented to the Bureau of Justice Statistics in Washington, DC (April 1983).

4. Empirical Bayes Estimation in Heterogeneous Matched Binary Samples with Systematic Aging Effects

Presented at the symposium *Adaptive Statistical Procedures and Related Topics*, in honor of Herbert Robbins' 70th birthday, Brookhaven National Laboratory (June 1985).

5. Emerging Problems in Multiple Regression

Presented at the Washington (State) Judicial Conference in Tacoma (August 1985).

6. Some Statistical Issues in Employment Discrimination Litigation

Presented at the Statistics Seminar at AT&T Bell Laboratories in Murray Hill, NJ (March 1986).

7. The Saddlepoint Approximation in Conditional Logistic Likelihood Analysis
Presented to the Harvard School of Public Health Department of Biostatistics,

Cambridge, MA (April 1989).

8. Testing Odds Ratio Homogeneity for Many Fourfold Tables

Presented to the Mount Sinai School of Medicine, Department of Biomathematical Sciences, New York, NY (November 1990).

- 9. Tests of Odds Ratio Homogeneity with Improved Power in Sparse Fourfold Tables
  Presented to the Memorial Sloan–Kettering Cancer Center, Division of Biostatistics,
  New York, NY (May, 1991).
- 10. Sampling from the Conditional Logistic Regression Model
  Presented to the Nathan Kline Institute for Psychiatric Research, Statistical Sciences and
  Epidemiology Division, Orangeburg, NY (February, 1994).
- 11. Clinical Trials with Assured New Treatment for Those at Greater Risk
  Presented to the Statistical Methods in Epidemiology Working Seminar,
  Department of Biostatistics, Harvard University, Boston, MA (March, 1997)
- 12. Randomized Designs and Alternatives

  Special invited lecture presented to the Center for AIDS Prevention Studies (CAPS),
  San Francisco, CA (April, 1997)
- 13. On a New Inequality Involving Normal Densities

  Presented to the Division of Biostatistics, Columbia School of Public Health, New York,
  NY (February, 1998) and to the Department of Statistics and Operations Research, Stern
  School of Business, New York University, New York, NY (December, 1998).
- 14. Statistical Evidence of Cheating in Large-scale, Multiple-choice Examinations
  Invited paper presented to the Fourth International Conference on Forensic Statistics,
  North Carolina State University, Raleigh, NC (December, 1999).
- 15. Mathematical Aspects of Estimating Two Treatment Effects and a Common Variance in an Assured Allocation Design
  Invited paper presented to the International Chinese Statistical Association Applied Statistics Symposium, Morristown, NJ (June, 2000).
- 16. Research Design, Biostatistics, and Ethics
  Invited facilitator at the 13th Annual Bioethics Summer Retreat, Jiminy Peak, MA
  (June, 2001).
- 17. Statistics Creates Beautiful Mathematics
  Invited Keynote Speaker at the 16th Annual New England Statistics Symposium,
  New Haven, CT (April, 2002).
- 18. How to Tell the Truth with Statistics
  Invited speaker at Johnson & Johnson Pharmaceutical Research & Development, Ethics
  Lecture Series IV, Titusville, NJ (April, 2003).
- 19. Statistical Issues in Clinical Trials
  Invited Faculty speaker at Lou Gehrig's Centennial Birthday: ALS Clinical Trials—The
  Challenge of the Next Century, Tarrytown, NY (June, 2003).

20. On a Family of Sequential Selection and Recruitment Procedures for Identifying the Best b out of c Binomials
Invited Lecturer for the 16th Annual Charles Odoroff Memorial Lecture,

Department of Biostatistics and Computational Biology, Rochester, NY (April, 2004).

21. Selection Procedures in Phase II Clinical Trials
Keynote speaker, Johnson & Johnson Pharma Stat 2005 Conference, Princeton, NJ
(September, 2005).

- 22. Innovative Statistical Designs for Small Clinical Trials
  Invited speaker, Muscle Study Group 2006 Conference, Java Center, NY (June, 2006).
- 23. Sequential Statistical Designs for Selecting from Competing Therapies
  Invited speaker, ALS Association Conference on Drug Discovery, Biomarkers, and
  Clinical Trials for ALS, The Banbury Center, Cold Spring Harbor Laboratory, NY
  (September, 2007).
- 24. Selection Designs in Phase II Trials
  Invited speaker, Huntington's Study Group, Boston, MA (November, 2007).
- 25. Statistical Methods for Rates and Proportions
  Invited tutorial faculty, The Sixty-Third Annual Deming Conference on Applied Statistics, Atlantic City (December, 2007).
- 26. Selection Designs

Invited speaker, Workshop on Demonstrating Disease-modifying Effects for the Treatment of Parkinson's Disease: Drug Development and Regulatory Issues, cosponsored by the American Association of Pharmaceutical Scientists, the United States Food and Drug Administration, the Michael J. Fox Foundation, and the Parkinson's Study Group, Arlington (April, 2008).

- 27. Statistics in the Law: Some Lessons from Famous and Infamous Cases
  Invited speaker with Michael O. Finkelstein, The New York Metro Area Chapter of the
  American Statistical Association, New York (February, 2009).
- 28. Use of Data Collected Out of Compliance When is it Acceptable?
  Invited speaker at the Institutional Review Board Annual Educational Conference,
  Columbia University, New York (March, 2009).
- 29. How to Make the BKS Subset Selection Procedure Adaptive and Other Results Invited speaker, Department of Biostatistics, Yale University, New Haven (March, 2009).

30. Selection Procedures in Clinical Trials

Invited to present this one-day short course at the U.S. Food and Drug Administration, Center for Drug Evaluation Research (FDA/CDER) with C.-S. Leu and K. Cheung (May, 2009).

31. A Tale of Two Adaptive Trials

Invited speaker in The Use of Adaptive Designs in an NIH-Funded Clinical Trials Environment session at The Society for Clinical Trials meetings, Atlanta, (May, 2009).

- 32. Recent Developments in Adaptive Subset Selection Procedures
  Invited speaker, Statistical and Services Research Division, Nathan Kline Institute for
  Psychiatric Research, Orangeburg (December, 2009).
- 33. Subset Selection in Comparative Selection Trials
  Invited speaker, Division of Statistical Sciences, New Jersey Institute of Technology,
  Newark (October, 2010).
- 34. Subset Selection for Comparative Clinical Selection Trials
  Invited speaker, Third Annual International Workshop on Sequential Methodologies,
  Stanford University (June, 2011).
- 35. Subset Selection for Comparative Clinical Selection Trials
  Invited speaker, International Chinese Statistical Association, New York City
  (June, 2011).
- 36. Meta-Analysis of Sparse Data—Perspectives from the Avandia Cases
  Invited speaker with Michael O. Finkelstein, International Chinese Statistical
  Association, New York City (June, 2011).
- 37. On an Algebraic Inequality Useful in Sequential Selection Procedures
  Invited speaker, Fifth Annual International Workshop on Sequential Methodologies,
  Columbia University (June, 2015).

# Other invited presentations not listed under Honors

- 38. Compound Multinomial Likelihood Functions are Unimodal Presented at ASA-Biometric Society-IMS meetings in Atlanta, GA (August 1975).
- 39. Discussant for section on Categorical Data Analysis at IMS meetings in Chapel Hill, NC (April 1977).
- 40. Sequential Medical Trials

  Presented at the IMS meetings in New Brunswick, NJ (May 1978).

- 41. On Extending Bock's Model of Logistic Regression
  Presented at the American Public Health Association meetings in Detroit, MI (October 1980).
- 42. Remember the Dominating Measure in your Logistic Regression Programs
  Presented at the Northern NJ Chapter of ASA Symposium on the Analysis of Discrete
  Data Morristown, NJ (May 1981).
- 43. *Urn Models for Regression Analysis*Presented at the ORSA/TIMS meetings in San Diego, CA (October 1982).
- 44. The Use of Cusum Procedures in Spontaneous Abortion Epidemiology Presented at the Columbia Statistics Day Conference (April 1983).
- 45. Empirical Bayes Methods for Non-identically Distributed Clusters of Binary Observations Presented at the Workshop on Statistical Methods in Animal Studies, Columbia University (October 1984).
- 46. Panelist in *The Statistician in Court: A Mock Trial*for the Panel on Statistical Assessments as Evidence in the Courts of the Committee on National Statistics and the Committee on Research on Law Enforcement and the Administration of Justice, National Academy of Sciences,
  Joint Statistical Meetings in Las Vegas, NV (August 1985).
- 47. The Geometric Cusum Procedure is More Efficient Than the Sets Procedure Presented at the Department of Statistics, Columbia University, New York, NY (October, 1995).
- 48. On the Unreasonable Effectiveness of a Biased Logistic Regression Procedure in the Analysis of Pair Matched Case-Control Data

  Presented at the Department of Statistics, Columbia University, New York, NY (March, 1996).
- 49. Building on SMRP

Invited lecture for the Joseph L. Fleiss Memorial Session, Joint Statistical Meetings, Minneapolis, MN (August, 2005).

- 50. The Risk-Based Allocation Design in Evaluation Research
  Invited speaker, Symposium on Community Collaborative Research: Interdisciplinary,
  Conceptual, and Methodological Approaches, Columbia University School of Social
  Work, New York (May, 2009).
- 51. Panelist in a discussion of the new NIMH guidelines for R34 pilot grant awards, Division of Biostatistics Colloquium Series, New York State Psychiatric Institute, New York (October, 2010).

# Other professional activities

1967–72	Computer Programmer and Statistical Consultant, Albert Einstein College of Medicine
1974–79	Statistical Consulting Service, Department of Mathematical Statistics, Columbia University
1975–79	Consultant, Employment Rights Project, Columbia Law School
1983	Consultant and coauthor with M.O. Finkelstein and H. Robbins on Equal Employment Opportunity Commission Amicus Brief to the United States Court of Appeals for the Fourth Circuit, in EEOC, Cooper, Moore and Hannah v. Federal Reserve Bank of Richmond 698 F.2d 633 (4th Cir. 1983)
1984-92	Director of Research, Statistica Consulting, Inc.
1987–88	Advisor to Institute of Medicine's Committee to Review the CDC Vietnam Veterans Agent Orange Study.
1995-present	Senior Statistical Consultant for the Collaborative Trials of the Warfarin and Aspirin Recurrent Stroke Study.
1996-97	Senior Statistical Consultant for the CABG Patch Trial
2000-present	Consultant for Oxford Health Plans
2001	Member of Institute of Medicine Committee on Strategies for Small-Number-Participant Clinical Research Trials
2009–2010	Consultant and coauthor on Amicus Brief to the United States Supreme Court, in re Mary Berghuis, Warden, Petitioner v. Diapolis Smith, Respondent, for social scientists, statisticians, and law professors, Jeffrey Fagan, et al., as <i>Amici Curiae</i> supporting respondent.

# **Grant Support**

<b>Present Grant Support:</b>	(In parentheses are annua	l Direct Costs funded.)
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2009–present Senior statistical advisor (5% effort) on NINDS funded

North American Mitochondrial Disease Consortium (NAMDC)

(M. Hirano, PI, \$890,038)

2014–present Senior statistical advisor (5% effort) on NICHD funded P50 center,

Mitochondrial Encephalomyopathies: Approaches to Treatment

(S. DiMauro and M. Hirano, Co-PIs, \$1,033,001)

2014–present Project biostatistician (5%) on NIAID funded

Tissue Compartmentalization of Human Lymphocytes program project

(D. Farber, PI, \$1,901,692)

2016–present Director (15% effort) of the Biostatistics, Epidemiology, and Research

Design Resource of the Clinical and Translational Award (CTSA) at the

Irving Institute for Clinical and Translational Sciences (NCATS)

(M. Reilly, PI, \$5,837,906)

2016–present Biostatistics program director (10% effort) on NIDDK funded P30

New York Obesity and Nutrition Research Center

(R. Leibel, PI, \$733,526)

2016–present Senior statistical advisor (10% effort) on CDC funded PHIA project

(Population-Based HIV Impact Assessments in Resource-Constrained

Settings under PEPFAR, J. Justman, PI, \$72,222,412)

2016–present Study biostatistician (10% effort) on NIAID funded Innate B cell

immunity and antibody-mediated rejection of human kidney allografts

(E. Zorn, PI, \$284,222)

2017-present Biostatistician (2.5% effort) on NIAID funded project, Regulatory T

Cells to Promote Mixed Chimerism for Tolerance to Islets and Kidneys

from Deceased and Living Donors

(M. Sykes, PI, \$1,425,467)

2017-present Biostatistician (5% effort) on NIAID funded project, A Tolerance

Approach to Xenotransplantation

(M. Sykes and D.H. Sachs, co-PIs, \$2,094,041)

Senior statistical advisor (1.67%) on NHLBI funded randomized trial,
Translating an Evidence-based Urban Asthma Program for Rural
Adolescents; Testing Effectiveness & Cost-effectiveness and
Understanding Factors Associated with Implementation
(J.-M. Bruzzese, PI, \$604,480)

Senior statistical advisor (5% effort) on NIAID funded
Center for Solutions for ME/CFS
(W.I. Lipkin, PI, \$1,420,178)

# **Past Grant Support**: (In parentheses are Total Direct Costs funded.) 1980-1981 School of Public Health Biomedical Research Support Grant (6.5%) 1981-1983 Principal Investigator (25% effort) on NICHD Grant HD15850 Spontaneous Abortion Epidemiology - Statistical Power. (B. Levin, PI, \$45,145) 1982-1983 School of Public Health Biomedical Research Support Grant (3%) Biostatistician (25% effort) on NICHD Grant HD15909 1982-1986 Epidemiology of Early Reproductive Loss. (J. Kline, PI, \$2,092,200) 1983-1992 Biostatistician (as needed) on NIH Training Grant AR07486 Epidemiology of Bone Diseases. (J.L. Kelsey, PI, \$68,748) 1984-1985 School of Public Health Biomedical Research Support Grant (4.5%) 1984-1986 Co-investigator on NICHD Grant HD18677 Detecting Clustering – Application to Reproduction. (S. Wallenstein, PI, \$45,758) 1986-1987 Biostatistician (15% effort) on NICHD Grant HD22820 Spermicide Use and Adverse Pregnancy Outcome. (D. Warburton, PI, \$341,647)

1986–1988	Senior Research Scientist Grade 31 (5% effort) on NIDA Grant DA04186, Epidemiology of Drug Abuse and Spontaneous Abortion. (J. Kline, PI, \$121,907)
1986–1989	Biostatistician (5% effort) on NIH Grant AR34851 Epidemiology of Prolapsed Lumbar and Cervical Disks. (J.L. Kelsey, PI)
1986–1990	Senior Research Scientist Grade 31 (7½%–10% effort) on competing continuation of NICHD HD15909, Epidemiology of Early Reproductive Loss. (J. Kline, PI, \$543,575)
1987–1992	Co-investigator (10% effort) on NIH Grant HL28907 Health Education for High Risk Urban Asthmatic Children. (R.B. Mellins, PI, \$1,470,431)
1989–1992	Biostatistician (3% effort) on NINCDS Grant NS26612 Somatosensory Grouped Potential in Congenital HIV Infection (R. Emerson, PI, \$516,442)
1989–1992	Biostatistician (2.5% effort) on NIDA Grant DA05730 Cocaine Abuse: Effects in Pregnancy and the Newborn (S. Ng, PI, \$688,134)
1989–1991	Biostatistician (5% effort) on NIH Grant HD24659 An Epidemiologic Study of Stress in Pregnancy (M. Hatch, PI, \$324,920)
1989–1993	Biostatistician (3% effort) on NIH Grant HL38260 Epidemiology of Hypertensive Emergency (S. Shea, PI, \$472,754)
1989–1993	Director, Biostatistics Core (10% effort) on NIMH Grant MH43878 Center to Study Youth Depression, Anxiety, and Suicide (D. Shaffer, PI, \$3,845,138)
1990–1991	Biostatician (5% effort) on NCI Grant CA52107 Random Digit Dialing: An Evaluation. (J.L. Kelsey, PI, \$50,000)
1990–1995	Biostatistician (10% effort) on NIH Grant HL45304 A Childhood Asthma Program in NYC Health Dept. Clinics. (R.B. Mellins, PI, \$1,650,935)
1990–1996	Co-investigator (10% effort) on NIH Grant ES505116 Biological Monitoring for Exposure to Aflatoxin. (R. Santella, PI, \$434,145)

1991–1992	Biostatistician (1% effort) ASPH–Subcontract to Sergievsky Center / Columbia University Maternal Stress during Pregnancy, Urinary Catecholamine Concentrations and Selected Reproductive Outcomes. (M. Hatch, PI, \$78,210)
1991–1993	Biostatistician (5% effort) on NIH Grant HS07076 Dissemination of Prevention Guidelines to Harlem Physicians. (D. Gemson, PI, \$235,553)
1991–1995	Biostatistician (10% effort) on NIH Grant AG10251 The Epidemiology of Trisomy and Aging. (J. Kline, PI, \$892,535)
1992–1994	Director of Program (5% effort) on NIMH Training Grant T32-MH15774, Research Training in Mental Health Statistics (B. Levin, PI, \$842,779)
1992–1996	Co-principal Investigator (5% effort) on NIH Grant NIA R35 AG10963, Leadership and Excellence in Alzheimer's Disease: Gene-Environment Interactions in Alzheimer's Disease.  (R. Mayeux, PI, \$2,893,522)
1993–1997	Biostatistician (5% effort) on NIH Grant HL51514 Risk Factors for Asthma in Harlem. (S.E. Findley, PI, \$671,798)
1993–1998	Biostatistician (5% effort) on NIH Grant HL51492 Decreasing the Need for Emergency Asthma Care in Harlem. (C. Felton, PI, \$1,281,395)
1993–1994	Biostatistician (5% effort) on Grant U48/CCU209663 Health Promotion and Disease Prevention Center. (A. Rosenfield, PI, \$221,172)
1994–1995	Principal Investigator (10% effort) on Subcontract to NIH Grant AG10251, The Epidemiology of Trisomy and Aging. (B. Levin, PI, \$13,455)
1995–1999	Biostatistician (10% effort) on NIH Grant 1U01CA/ES66572 Breast Cancer and the Environment on Long Island (M. Gammon, PI, \$5,180,000)
1996–2000	Senior Statistical Consultant (5% effort) on NIH Grant RR00645 General Clinical Research Center (H.N. Ginsberg, PI, \$2,565,000)

1997–1998	Senior Statistical Consultant (5% effort) to NICHD Grant HD27006 Data Coordinating Center for Reproductive Medicine Network (R.E. Canfield, PI, \$196,000)
1997–2002	Senior Statistical Consultant (10% effort) to NINDS funded Warfarin Antiplatelet Recurrent Stroke Study. (J.P. Mohr, PI, \$338,313)
1998–2004	Principal Investigator on subcontract (10% effort) to NIA funded study Epidemiology of Ovarian Age (J. Kline, PI, B. Levin, subcontract, \$23,285)
2002–2007	Biostatistician (5% effort) on NICHD funded study, Spontaneous Abortion and Skewed X Chromosome Inactivation. (D. Warburton, PI, \$530,216)
2004–2007	Senior Statistical Consultant (5% effort) to NINDS funded Clinical Trial of High Dose CoQ10 in ALS (QALS—STAT) (J.L.P. Thompson, PI, \$175,000)
2004–2009	Senior Statistical Consultant (5% effort) to NINDS funded Phase IIB Study of TNK in Acute Stroke (TNK-S2B-STAT) (J.L.P. Thompson, PI, \$318,061)
2005–2010	Senior statistical consultant (2.3% effort) on NIMH funded center, Columbia Center for Homelessness Prevention (C. Caton, PI, \$210,813)
2007–2010	Principal Investigator on subcontract (7.5% effort) on NIDA funded center Clinical Trials Network: Long Island Regional Node (E. Nunes, PI, \$73,215)
2007–2010	Co-investigator (5% effort) on NICHD funded study of association of trisomy with maternal age as reflective of accelerated ovarian aging Trisomy and Ovarian Age: An Epidemiologic Study (J. Kline, PI, \$347,007)
2002–2011	Senior Statistician (5% effort) to NICHD funded Cooperative Multicenter Traumatic Brain Injury Clinical Trials Network Data Coordinating Center (W.T. Friedewald, PI, \$1,030,834).
2002–2012	Principal Investigator on subcontract (5% effort) on NIMH funded randomized clinical trial, Antipsychotic Discontinuation in Alzheimer's Disease (D. Devanand, PI, B. Levin, subcontract \$23,954)

2002–2013	Senior Statistical Consultant (20% effort) to NINDS funded study Warfarin v. Aspirin in Reduced Cardiac Ejection Fraction–STAT. (J.L.P. Thompson, PI, \$1,838,989)
2006–2014	Co-investigator (5%) on NINDS funded methodology grant to study dose escalation and treatment selection methods (K. Cheung, PI, \$112,500)
2004–2014	Co-investigator (5%) on NINDS funded Gene-Environment Interactions in an Autism Birth Cohort (W.I. Lipkin, P.I., \$2,674,377)
2013–2016	Project biostatistician (5% effort) on NIA funded Olfactory Deficits and Donepezil Treatment in Cognitively Impaired Elderly (D. Devanand, PI, \$377,662)
2014–2017	Senior statistical advisor (5% effort) on Simons' Foundation funded Maternal and child infection and immunity in ASD (W.I. Lipkin, PI, \$796,671)
1998–2018	Principal Investigator (20% effort) of NIMH funded Statistics, Epidemiology, and Data Management Core of the HIV Center for Clinical and Behavioral Studies (A. Ehrhardt, R. Remien, Directors, B. Levin, subcontract PI, \$78,c73)

# **University committees**

2000-2007	MSPH Curriculum Committee
2008–2009	Ad Hoc Advisory Committee to the Provost for the Salary Study of Officers of Research
2018	MSPH Search Committee for Chair of the Department of Sociomedical Sciences

## Teaching experience and responsibilities

# A. Courses taught [approximate number of students](semester-year):

# Courses taught in the Department of Mathematical Statistics:

- 1. Statistics C3001x-3002y [80] Introduction to Statistics (F-74, S-75).
- 2. Statistics W1111x-W1112y [85] Introduction to Statistics (F-78, S-79, S-83, F-91).
- 3. Mathematical Statistics W4006y [20] Principles of Statistical Inference (S-78).
- 4. Mathematical Statistics-Sociology G4181x-G4182y [20] Statistical Methods in Social Sciences (F-75, S-76, F-76, S-77, F-77, S-78, F-78, S-79).
- 5. Mathematical Statistics G6107x-G6108y [10] Theory of Statistical Inference (F-74, S-75, F-75, S-76).
- 6. Mathematical Statistics G8245x [2] Topics in Advanced Statistics (F-76, F-77).

# Courses taught in the Division then Department of Biostatistics:

- 7. Biostatistics P6102 [40] Introduction to Statistical Inference (F-79, F-80, F-81).
- 8. Biostatistics P6104 [60] Introduction to Biostatistical Methods (F-98).
- 9. Biostatistics P6105 [10] Introductory Probability with Statistical Applications (F-89).
- 10. Biostatistics P8109 [20] Statistical Inference (S-00).
- 11. Biostatistics P8120 [20-100] The Analysis of Categorical Data (F-79, F-83, S-87, S-88, S-93, F-93, S-94, S-96, F-96, S-97, S-02, S-04, S-10).
- 12. Biostatistics P8129 [12] Theory of Multivariate Analysis (F-89).
- 13. Biostatistics P8133 [10] (new course) Sequential Experimentation (F-84, S-86, F-92, S-95, S-01, S-08).
- 14. Biostatistics P8137 [4] Seminar in the Statistics of Mental Health Research (F-92).
- 15. Biostatistics P8140 [50] The Randomized Clinical Trial (S-06).
- 16. Biostatistics P8151 [10] (new course) Methods of Statistical Adjustment (S-87, F-90, F-93).
- 17. Biostatistics P8160 [10] (new course) Topics in Statistical Computing with APL (S-89, F-90).

- 18. Biostatistics P8177 [7] (new course) Biostatistics in Legal Proceedings (S-14, S-15, S-16, S-17)
- 19. Biostatistics P8185 [10] Capstone Consulting Seminar (S-06, S-07).
- 20. Biostatistics P8190 [1] Master's Tutorial (F-91, S-93, F-95, S-00, S-01, F-01, F-03, S-08).
- 21. Biostatistics P9190 [1] Tutorial (Doctoral) (S-90, S-93, S-07, F-08).
- 22. Biostatistics P9154 [10] (new course) Discrete Statistical Analysis (S-77, S-80, S-84, S-85, F-86, F-87, F-88, S-92, S-94, S-96, S-98, F-03, S-09, S-11).
- 23. Public Health P6071 [20] The Integration of Science and Practice (F-13, S-14)
- 24. Biostatistics P9109 [6] Theory of Statistical Inference I (Doctoral) (F-17).

#### Other courses:

- 25. Law L6248x [20] Statistics for Lawyers, co-taught with M.O. Finkelstein, Columbia University School of Law (S-82).
- 26. IPPR First Year Medical Student Short Course in Biostatistics [150] (F-81, S-87, S-88, S-92).
- 27. Survival Analysis, adjunct at Rutgers University [20] (F-95).
- 28. Selection Methods in Clinical Trials, a one-day short course delivered to the U.S. Food and Drug Administration, Division of Biostatistics, Center for Drug Evaluation Research [50] (S-09).

#### **B.** Thesis sponsorships:

1. Patricia Zybert, Ph.D. in Biostatistics, 1986.

Dissertation: A Sequential Elimination Procedure for Selecting the Highest Binomial Probability.

2. John P. Orazem, Ph.D. in Biostatistics, 1990.

Dissertation: A Nonparametric Analysis of Survival Data Within a Mixture of Susceptibles and Nonsusceptibles.

3. Fanhui Kong, Ph.D. in Biostatistics, 1992.

Dissertation: Edgeworth Expansions in Generalized Linear Models and Logistic Regression Models.

4. Michael K. Parides, Ph.D. in Biostatistics, 1995.

Dissertation: Testing Homogeneity of Discrete Exponential Families in the Large-Sparse Case.

5. Cheng-Shiun Leu, Ph.D. in Biostatistics, 1997.

Dissertation: Some theorems concerning a sequential elimination procedure for selecting the best one of several binomial populations or multinational categories.

6. Xun Chen, Ph.D. in Biostatistics, 1999.

Dissertation: Estimation methods for semi-parametric models in risk-based allocation trials.

7. Rosita Zawadzki, Dr.P.H. in Biostatistics, 2003.

Dissertation: On the Truncated Levin-Robbins Sequential Selection Procedure for Three Binomials.

8. Xianhuang Zhou, Ph.D. in Biostatistics, 2006.

Dissertation: Some Statistics for Comparing Two Treatments with Placebo, with Selection of Better Treatment.

9. Gilberto Levy, Dr.P.H. in Biostatistics, 2011.

Dissertation: An index of Aging-Relatedness with Relevance to Genetic and Environmental Contributions to Mortality and Disease Incidence in a Population (with distinction).

10. Keith Goldfeld, Dr.P.H. in Biostatistics, 2012.

Dissertation: Applying twice-weighted multiple interval estimates of a marginal structural modelto analyze the cost-effectiveness of treatments provided tonursing home residents with advanced dementia.

#### C. Dissertation committees:

# For the degree of Doctor of Philosophy:

1. Anne A. Robrock, Department of Mathematical Statistics, 1974.

Dissertation: Detecting a Spike in a Geometric Distribution and an Algorithm for Resistant Line Fitting.

2. Teddy Seidenfeld, Department of Philosophy, 1975.

Dissertation: The Fiducial Argument.

3. Hajime Takahashi, Department of Mathematical Statistics, 1978.

Dissertation: On the Truncated Power One Test and Non-linear Renewal Theorem.

4. Wendy Worth, Department of Sociology, 1980.

Dissertation: The Occupational Matrix: An Exploratory Analysis of the Situs-Prestige and Industry-Prestige Distributions of Four White Ethnic Groups.

5. Sonja H. Johansen, Division of Biostatistics, 1982.

Dissertation: Linear Regression Models for Censored Occurrence Time Data.

6. Martin A. Weinstock, Division of Epidemiology, 1982.

Dissertation: Cigarette Yield and the Outcome of Pregnancy.

7. Janet Lynn Berkeley, Division of Epidemiology, 1983.

Dissertation: Variation in Profile of Psychological Symptom Dimensions: Effect of Gender, MF Score, and Selected Social Statuses.

8. David Edelman, Department of Mathematical Statistics, 1983.

Dissertation: Empirical Permutation Bayes Estimation: Gaussian Case.

9. Bridget F. Grant, Division of Epidemiology, 1984.

Dissertation: Preliminary Evaluation of Competing Screening Tests for Major Depression and Substance Abuse and Dependence in an Alcoholic Population: An Application of Receiver Operating Characteristic (ROC) Methodology.

10. Mai Zhou, Department of Statistics, 1986.

Dissertation: Some Nonparametric Two-Sample Tests with Censored Data.

11. Anne L. Golden, Division of Epidemiology, 1990.

Dissertation: Occupational Physical Demands and Risk of Prolapsed Lumbar Intervertebral Discs.

12. Mingxin Tang, Department of Statistics, 1990.

Dissertation: Statistical Analysis for Doubly Censored Data.

13. Xiao Ou Shu, Division of Epidemiology, 1992.

Dissertation: Obesity, Diet, Physical Activity, and the Risk of Endometrial Cancer

14. Jeanne Marie Courval, Division of Epidemiology, 1992.

Dissertation: Estimating the Impact of Malarial Control on Mortality in Infants and Children

15. Sara H. Olson, Division of Epidemiology, 1992.

Dissertation: The Selection of Control Groups in Case-Control Studies: Evaluation of Control Groups Selected by Random Digit Dialing and from Hospitals.

16. Dawn Misra, Division of Epidemiology, 1993.

Dissertation: The Effect of Hypertensive Disorders of Pregnancy Upon Fetal Growth.

17. Dale Cindy Hesdorffer, Division of Epidemiology, 1993.

Dissertation: Cryptogenic Unprovoked Seizures in the Elderly: A Case-Control Study of Cerebrovascular Disease Risk Factors.

18. Mary Northridge, Division of Epidemiology, 1993.

Dissertation: Home Hazards, Physical Functioning, and Non-Syncopal Falls at Home in Older Persons.

19. Shu-Lin Cheng, Division of Biostatistics, 1993.

Dissertation: Nonparametric Analysis of Data Obtained Under Case-Cohort Design.

20. Cecilia Anne Hale, Division of Biostatistics, 1994.

Dissertation: Non-null Inferences about Kappa.

21. Suzanne Margaret Leal, Division of Epidemiology, 1994.

Dissertation: Etiologic/Genetic Hetergeneity.

22. Emilia Bagiella, Division of Biostatistics, 1997.

Dissertation: Estimating a Survival Distribution from Case-Control Family Data.

23. Haiying Zhang, Division of Biostatistics, 1998.

Dissertation: Nonparametric Method for Longitudinal Studies with Dropout.

24. Xiaoping Hu, Division of Biostatistics, 1998.

Dissertation: Survival Analysis for Competing Risks Models

25. Susan Teitelbaum, Division of Epidemiology, 2000.

Dissertation: Reported Residential Pesticide Use and Breast Cancer on Long Island, NY.

26. Dong Xu, Department of Biostatistics, 2001.

Dissertation: Optimal Path-Dependent Estimator for Bivariate Survival Functions.

27. Hoi-Jeong Lim, Department of Biostatistics, 2001.

Dissertation: Saddlepoint Approximations to P-values for Comparisons of Density Estimates.

28. Min Wu, Department of Biostatistics, 2002.

Dissertation: Adjusting for Population Admixture in Multipoint Linkage Analysis with Missing Parental Haplotypes.

29. Ruei-Che Liu, Department of Biostatistics, 2003.

Dissertation: The Distance-Based Framework for Model Assessment in Regression.

30. Nancy Mervish, Department of Epidemiology, 2003.

Dissertation: Lifestyle factors, ovarian response & conception in infertile women.

31. Alexander Kiss, Department of Biostatistics, 2004.

Dissertation: Hierarchical Models: What the Data Are Really Telling Us.

32. Yuging Yang, Department of Biostatistics, 2005.

Dissertation: Some Statistical Methods for Diagnostic Accuracy with Correlated Data.

33. Mei-Yin Chen, Department of Biostatistics, 2006.

Dissertation: Two-stage Stepwise Procedures for Dose-Finding in Clinical Trials with a Biological Endpoint.

34. Hong Tian, Department of Biostatistics, 2006.

Dissertation: Variance Estimation of the Cross Validation Estimator of the Generalization Error.

35. Hye-Seung Lee, Department of Biostatistics, 2006.

Dissertation: Familial Correlation Analysis Using Regression Models.

36. Xiaodong Luo, Department of Biostatistics, 2006.

Dissertation: Analysis of Failure Time Data with Interval Censoring and Bivariate Truncation.

37. Hui Zhang, Department of Biostatistics, 2007.

Dissertation: Handling Missing Data in Regression Without Specifying Auxiliary Models.

38. John Spivack, Department of Biostatistics, 2011.

Dissertation: The Limb-Leaf Design: A New Way to Explore the Dose Response Curve in Adaptive Seamless Phase II/III Trials.

39. Xiaoyu (Rachel) Jia, Department of Biostatistics, 2013.

Two-stage Continual Reassessment Method and Patient Heterogeneity for Dose-Finding Studies.

40. Christine Mauro, Department of Biostatistics, 2015.

Learning Logic Rules Using an Iterative Algorithm: With an Application to Developing Criteria Sets for the Diagnostic and Statistical Manual of Mental Disorders.

41. Xin Qiu, Department of Biostatistics, 2018.

Statistical Learning Methods for Personalized Medicine.

#### For the degree of Doctor of Public Health:

42. Michelle Kiely, Division of Epidemiology, 1985.

Dissertation: Use of Multinomial Capture-Recapture and Log-linear Analysis to Estimate the Prevalence of Developmental Disabilities.

43. Deborah Shapiro, Division of Biostatistics, 1986.

Dissertation: Survival Models with Concomitant Variables in Long Term Maintenance Drug Therapy of Recurrent Bipolar Affective Illness.

44. Carol A. Bodian, Division of Biostatistics, 1983.

Dissertation: Risk of Carcinoma of the Breast Subsequent to Various Benign Breast Diseases.

45. Alan C. Fisher, Division of Biostatistics, 1984.

Dissertation: Utilization of a Nonparametric Estimator to Test for Group Differences and Interaction Across Strata.

46. Eric Dulberg, Division of Epidemiology, 1987.

Dissertation: An Evaluation of the Effectiveness of Iodized Oil Injections in Preventing Endemic Cretinism and Milder Developmental Delay.

47. Diana Hartell, Division of Epidemiology, 1993.

Dissertation: Methadone Maintenance for Treatment of Opiate Addiction and Reduction of Injection Drug Use.

48. Beatriz Staghezza Jaramillo, Division of Epidemiology, 1996.

Dissertation: Cross-Cultural Comparison of Behavior Problems Among Toddlers in the USA and Yugoslavia.

49. Chin-Lin Tseng, Department of Biostatistics, 2001.

Dissertation: Analysis of Two-Wave Multi-Stage Survey Data: The Contextual Effect of Unemployment on Mental Health.

50. Michelle Norton, Department of Biostatistics, 2002.

Dissertation: Repeated Measures Analysis of Continuous Data: An Application to Assess Blood Pressure Variability Buffering Effects of Cardiac Autonomic Control During Psychological and Orthostatic Challenge.

51. Xiaobo (Tony) Zhong, 2018.

Design and Analysis of Sequential Multiple Assignment Randomized Trial for Comparing Multiple Adaptive Interventions.

# **Testimony as an expert statistical witness in lititgation:**

#### A. Cases in which I testified in court:

1. Hupart v. Board of Higher Education of the City of New York

420 F. Supp. 1087

U.S. District Court, Southern District of New York, Judge Frankel Attorneys: Victor J. Herwitz, 22 East 40th Street, NYC, NY 10016. (1976; testified for plaintiff in a reverse race discrimination case).

2. Huertas v. East River Housing Corp.

U.S. District Court, Southern District of New York, Judge Carter Attorneys: Kenneth Kimmerling of Puerto Rican Legal Defense and Educational Fund, 95 Madison Avenue, NYC, NY 10016.

(2/81; testified for plaintiff in housing race discrimination case).

3. Berkman v. City of New York

U.S. District Court, Eastern District of New York, Judge Sifton Attorneys: Robert King of Debevoise, Plimpton, Lyons & Gates, 299 Park Avenue, NYC, NY 10017; Laura Sager of Women's Rights Clinic of the Washington Square Legal Services, Inc., 40 Washington Square South, NYC, NY 10012. (9/81; testified for plaintiff in firefighters' sex discrimination case).

4. Novotny v. Great American Federal Savings and Loan Assoc.

U.S. District Court, Western District of Pennsylvania, Judge Cohill Attorneys: Stanley M. Stein of Felstein, Grinberg, Stein & McKee, Seventh Floor, Law and Finance Building, Pittsburgh, PA 15219. (11/81; testified for plaintiff in sex discrimination case).

5. Brinks, Inc. v. City of New York

U.S. District Court, Southern District of New York, Judge E. Weinfeld Attorneys: Robert Meister of Milgram, Thomajan, Jacobs & Lee, Chrysler Building, NYC, NY 10714. (6/82; testified for plaintiff in a jury trial concerning parking meter revenue trends).

6. Lewis v. NLRB

U.S. District Court, District of Texas – Houston, Judge Black Attorneys: Gail J. Wright of Legal Defense and Educational Fund, 10 Columbus Circle, NYC, NY 10019.

(6/82; testified for plaintiff in a race discrimination case involving promotion through GS system).

- 7. Sobel v. Yeshiva University
  - U.S. District Court, Southern District of New York, Judge Goettel Attorneys: Daniel Riesel and Mark A. Chertok of Winer, Neuberger & Sive, 425 Park Avenue, NYC, NY 10022.
  - (9/82; testified for defendant in a sex discrimination case against the Albert Einstein College of Medicine).
- Mississippi Council on Human Relations v. State of Mississippi (J76 Civ 118R)

   U.S. District Court, Southern District of Mississippi Jackson, Judge J. Countiss Attorneys: Jeffrey N. Drummond of Debevoise & Plimpton, 875 Third Avenue, NYC, NY 10022.
   (11/83; testified on behalf of plaintiff in race discrimination suit against Attorney General's office).
- 9. U.S. Dept. of Labor v. Harris Trust and Savings Bank (78-OFCCP-2) Judge Nahum Litt Administrative hearing, U.S. Department of Labor - Washington Attorneys: Deborah Millenson, Richard Gilman, and Diane Heim of Office of the Solicitor, U.S. Dept of Labor, 200 Constitution Ave, NW, Washington, DC 20210. (12/85-1/86; testified on behalf of plaintiffs in race and sex discrimination suit).
- 10. Auxilium Pharmaceuticals, Inc. and FCB I, LLC v. Watson Laboratories, Inc. Civil Action No. 12-3084, Judge Jose L. Linares Attorneys: Isaac Ashkenazie, Melanie Rupert, and Bruce Wexler of Paul, Hastings, Janofsky & Walker, 75 East 55<sup>th</sup> Street, New York, NY 10022. (09/14: testified on behalf of plaintiff in re statistical appropriateness of bioequivalence studies supporting differences between Testim and AndroGel in a patent dispute).
- 11. Reckitt Benckiser Pharmaceuticals Inc. and Monosol Rx, LLC, v. Watson Laboratories Inc. and Actavis Laboratories UT, Inc., Par Pharmaceutical, Inc., Intelgenix Technologies Corp., and Teva Pharmaceuticals USA, Inc. C.A. Nos. 14-1574, 14-1573, and 14-1451, Judge Richard G. Andrews. Attorneys: Charanjit Brahma of Troutman Sanders, 580 California Street, Suite 1100, San Francisco, CA 94104-1032 and Daniel Ladow of Troutman Sanders, 875 Third Avenue, New York, NY 10022, and Victor Ban of Covington & Burling, One CityCenter, 850 Tenth Street, NW, Washington, DC 20001-4956. (11/16; on behalf of plaintiff Reckitt Benckiser regarding suboxone patent infringement).

#### B. Cases in which my deposition was taken (cases settled before trial):

12. Smith v. Readers Digest Association, 73 Civ 4883.

U.S. District Court, Southern District of New York, Judge Frankel Attorneys: Harriet Raab, George Cooper and Howard Rubin, Employment Rights Project, Columbia University Law School, NYC, NY 10027. (1977; on behalf of plaintiff in sex discrimination case).

13. Boylan v. New York Times Co., 74 Civ 4891.

U.S. District Court, Southern District of New York, Judge Werker Attorneys: Harriet Raab, George Cooper and Howard Rubin, Employment –Rights Project, Columbia University Law School, NYC, NY 10027. (1978; on behalf of plaintiff in sex discrimination case).

14. The Hamburger Patties Cases

U.S. District Court, San Diego, California

Attorney: Frederic L. Gordon and Palma Cesar Hooper,

Thorsnes, Bartolotta, McGuire & Padilla, 2550 5th Ave. 11th Floor, San Diego, CA 92103.

(1996; on behalf of Foodmaker Inc., in re statistical analysis of foodborne illness outbreak).

15. Craft, et al. v. Vanderbilt, et al.

Attorney: A.H. Wilcox, of Pepper, Hamilton & Scheetz, Philadelphia, and Michael O. Finkelstein, of Patterson, Belknap, Tyler & Webb, NYC. (1997; on behalf of defendant in re statistical evidence of cancer causation from a post–war radiolabelled iron nutritional uptake study).

- 16. Eisai Co., Ltd., and Eisai, Inc. v. Dr. Reddy's Laboratories, Ltd., et al. Attorney: Bruce M. Wexler, of Paul, Hastings, Janofsky & Walker, LLP, New York City, and Bradley A. Harsch and Niall D. Omurchadha of Sullivan & Cromwell, LLP, New York City.

  (2005; on behalf of plaintiff in re statistical analysis of animal experiment data concerning stomach acid reduction of rabeprazole compared with omeprazole in a patent challenge case).
- 17. Sunovion Pharmaceuticals, Inc. v. Teva Pharmaceuticals USA, Inc., et al. Attorneys: Bruce M. Wexler and Mark Koehn, of Paul, Hastings, Janofsky & Walker, 75 East 55<sup>th</sup> Street, New York, NY 10022. (2011: on behalf of plaintiff in re statistical appropriateness of clinical trials supporting differences between zopiclone and eszopliclone in a patent challenge case).

# **C.** Other testimony:

- 18. Testified before F.T.C. commissioners in re Sominex 2 hearings.
  Attorney: J. Halvorsen, Shearman & Sterling, NYC.
  (1984; on behalf of respondent Beecham Products).
- 19. Testified in an administrative hearing in re <u>Butler v. NYS Civil Service</u>. (1985; on behalf of plaintiff alleging disparate racial impact in police examinations).
- Testified in New York City Police Dept. proceeding, Case No. 64261/90.
   Attorney: Lieut. Michael Gorman, One Police Plaza, NYC.
   (1990; on behalf of Department Advocate's Office in re statistical sampling methodology for random drug testing).
- 21. Testified in New York City Police Dept. proceeding, Case No. 67061/92.

  Attorney: Rosemarie DeBellis, One Police Plaza, NYC.

  (1993; on behalf of Department Advocate's Office in re pseudorandom number generation and statistical sampling methodology for random drug testing).
- Testified in New York City Police Dept. proceeding, Case No. 69758/95 et al. Attorney: Harry Peters, One Police Plaza, NYC.
  (1997; on behalf of Department Advocate's Office in re statistical evidence of cheating on a standardized multiple choice examination for promotion to sergeant).
- 23. Testified at arbitration hearings on behalf of Oxford Health Plans.

  Attorney: Joe Clasen of Robinson & Cole, Chrysler East Building, 666 Third Avenue, 20<sup>th</sup> Floor, New York, NY 10017.

  (2000–present; in re upcoding practices by participating physicians).
- 24. Testified at a NAFTA arbitration hearing in re Eli Lilly v. Government of Canada. Attorneys: Marney Cheek, James Smith, and Nikhil Gore, Covington & Burling, One CityCenter, 850 Tenth Street, NW, Washington, DC 20001-4956. (2016; on behalf of Eli Lilly regarding disparate impact of Canadian federal "promise doctrine" against pharmaceutical sector patents).
- Testified in United HealthCare Insurance Co. and Care Improvement Plus Insurance Co. *et alia* v. Lincare Inc., Case No. 01-15-0003-4095.
  Attorneys: Thomas Mahlum of Robins Kaplan, 800 LaSalle Avenue, Suite 2800, Minneapolis, MN 55402.
  (2016; on behalf of plaintiff United Healthcare in an arbitration hearing involving sampling and statistical extrapolation for overpayment).

**Publications**: An asterisk (\*) indicates senior authorship.

# A. Original, peer reviewed articles:

- 1. Glick, S.D., Jarvik, M.E., Levin, B. and Carley, J.L. (1970). An Automatic Multiple Choice Test of Short–Term Spatial Memory for Monkeys. *Journal of Experimental Analysis of Behavior* 13:317–318.
- 2. Glick, S.D., Levin, B. and Jarvik, M.E. (1970). Role of Monkeys' Spatial Preferences in Performance of a Non-spatial Task. *Journal of Comparative and Physiological Psychology* 73:56–61.
- 3. \*Levin, B. and Reeds, J. (1977). Compound Multinomial Likelihood Functions are Unimodal: Proof of a Conjecture of I.J. Good. *Annals of Statistics* 5:79–87.
- 4. Hirschfeld, L., Howe, J. and Levin, B. (1978). Warfare, Infanticide, and Statistical Inference: A Comment on Divale and Harris. *American Anthropologist* 89:110–115.
- 5. Kline, J., Levin, B., Stein, Z.A., Susser, M.N. and Warburton, D. (1980). Epidemiologic Detection of Low Dose Effects on the Developing Fetus. *Proceedings of the First Annual Symposium on Environmental Epidemiology*, Pittsburgh, PA.
- 6. Lai, T.L., Levin, B., Robbins, H. and Siegmund, D. (1980). Sequential Medical Trials. *Proceedings of the National Academy of Sciences USA* 77(6):3135–3138.
- 7. \*Levin, B. and Shrout, P.E. (1981). On Extending Bock's Model of Logistic Regression in the Analysis of Categorical Data. *Communications in Statistics* A10(2):125–147.
- 8. \*Levin, B. (1981). A Representation for Multinomial Cumulative Distribution Functions. *Annals of Statistics* 9(5):1123–1126.
- 9. \*Levin, B. and Robbins, H. (1981). Selecting the Highest Probability in Binomial or Multinomial Trials. *Proceedings of the National Academy of Sciences USA* 78(8):4663–4666.
- 10. \*Levin, B. (1982). On the Accuracy of a Normal Approximation to the Power of the Mantel-Haenszel Procedure. *Journal of Statistical Computation and Simulation* 14(3):210–218.
- 11. Robbins, H. and Levin, B. (1983). A Note on the Underadjustment Phenomenon. *Statistics and Probability Letters* 1:137–139.

- 12. \*Levin, B. (1983). On Calculations Involving the Maximum Cell Frequency. *Communications in Statistics*, special edition on the Analysis of Categorical Data, 12(11):1299–1327.
- 13. Kline, J., Levin, B., Shrout, P.E., Stein, Z.A., Susser, M.N. and Warburton, D. (1983). Maternal Smoking and Trisomy among Spontaneously Aborted Conceptions. *American Journal of Human Genetics* 35(3):421–431.
- 14. \*Levin, B. and Robbins, H. (1983). Urn Models for Regression Analysis with Applications to Employment Discrimination Studies. *Law and Contemporary Problems* 46(4):247–267.
- 15. \*Levin, B. (1984). On a Sequential Selection Procedure of Bechhofer, Kiefer, and Sobel. *Statistics and Probability Letters* 2(2):91–94.
- 16. \*Levin, B. (1984). Simple Improvements on Cornfield's Approximation to the Mean of a Non-central Hypergeometric Random Variable. *Biometrika* 71(3):630–632.
- 17. \*Levin, B. and Kline, J. (1984). Letter to the Editor Re: "The Detection of Disease Clustering in Time." *Biometrics* 40:1179–1180.
- 18. Levin, B. and Fleiss, J.L. (1985). Letter to the Editor Re: "Interpreting Multiple Logistic Regression Coefficients in Prospective Observational Studies." *American Journal of Epidemiology* 122(2):348.
- 19. \*Levin, B. and Kline, J. (1985). The Cusum Test of Homogeneity with an Application in Spontaneous Abortion Epidemiology. *Statistics in Medicine* 4:469–488.
- 20. Weinstein, G.S. and Levin, B. (1985). The Coronary Artery Surgery Study (CASS): A Critical Appraisal. *Journal of Thoracic and Cardiovascular Surgery* 90:541–548.
- 21. Simberloff, D. and Levin, B. (1985). Predictable Sequences of Species Loss with Decreasing Island Area Land Birds in Two Archipelagoes. *New Zealand Journal of Ecology* 8:11–20.
- 22. \*Levin, B. (1987). Conditional Likelihood Analysis in Stratum–Matched Retrospective Studies with Polytomous Disease States. *Communications in Statistics* B16(3):699–718.
- 23. Evans, D., Clark, N.M., Feldman, C.H., Rips, J., Kaplan, D., Levison, M.J., Wasilewski, Y., Levin, B., and Mellins, R.B. (1987). A School Health Education Program for Children with Asthma Aged 8–11 Years. *Health Education Quarterly* 14(3):267–279.

- 24. Evans, D., Levison, M.J., Feldman, C.H., Clark, N.M., Wasilewski, Y., Levin, B., and Mellins, R.B. (1987). The Impact of Passive Smoking on Emergency Room Visits of Urban Children with Asthma. *American Review of Respiratory Diseases* 135:567–572.
- 25. Zybert, P. and Levin, B. (1987). Selecting the Highest of Three Binomial Probabilities. *Proceedings of the National Academy of Sciences USA* 84:8180–8184.
- 26. \*Levin, B. (1988). Letter to the Editor Re: "Polychotomous Logistic Regression Methods for Matched Case-Control Studies with Multiple Case or Control Groups." *American Journal of Epidemiology* 128:446.
- 27. Fleiss, J.L. and Levin, B. (1988). Sample Size Determination in Studies with Matched Pairs. *Journal of Clinical Epidemiology* 41(8):727–730.
- Weinstein, G.S. and Levin, B. (1989). The Effect of Crossover on the Statistical Power of Randomized Studies. *Annals of Thoracic Surgery* 48:490–495.
- 29. Weinstein, G.S. and Levin, B. (1990). Letter to the Editor Re: "Crossovers in Coronary Artery Bypass Grafting Trials." *Annals of Thoracic Surgery* 49:847–848.
- 30. Hatch, M., Kline, J., Levin, B., Hutzler, M., and Warburton, D. (1990). Paternal Age and Trisomy Among Spontaneous Abortions. *Human Genetics* 85:335–361.
- 31. \*Levin, B. and Kong, F. (1990). Bartlett's Bias Correction to the Profile Score Function is a Saddlepoint Correction. *Biometrika* 77(1):219–221.
- 32. \*Levin, B. (1990). The Saddlepoint Correction in Conditional Logistic Likelihood Analysis. *Biometrika* 77(2):275–285.
- 33. Kline, J., Hutzler, M., Levin, B., Stein, Z., Susser, M., and Warburton, D. (1991). Marijuana and Spontaneous Abortion of Known Karyotype. *Paediatric and Perinatal Epidemiology* 5:320–332.
- 34. Kline, J., Levin, B., Silverman, J., Kinney, A., Stein, Z., Susser, M., and Warburton, D. (1991) Caffeine and Spontaneous Abortion of Known Karyotype. *Epidemiology* 2:409–417.
- 35. \*Levin, B. (1991). Re: "Interpretation and Choice of Effect Measures in Epidemiologic Analyses." *American Journal of Epidemiology* 133:963–964.
- 36. \*Levin, B. (1992). In re: "Siobhan's Problem: The Coupon Collector Revisited." *The American Statistician* 46:76.

- 37. Olson, S.H., Kelsey, J.L., Pearson, T.A., and Levin, B. (1992)
  Evaluation of Random Digit Dialing as a Method of Control Selection in Case–
  Control Studies. *American Journal of Epidemiology* 135:210–222.
- 38. \*Levin, B. (1992)
  Tests of Odds Ratio Homogeneity with Improved Power in Sparse Fourfold Tables.

  \*Communications in Statistics 21(6):1469–1500.
- 39. \*Kline, J. and Levin, B. (1992)

  Trisomy and Age at Menopause: Predicted Associations Given a Link with Rate of Oocyte Atresia. *Paediatric and Perinatal Epidemiology* 6(2):225–239.
- 40. Westhoff, C., Levin, B., Ladd, G., and O'Connor, J. (1992) Sources of Variability in Normal CA 125 Levels. Cancer Epidemiology, Biomarkers & Prevention 1:357–359.
- 41. Kline, J., Levin, B., Stein, Z., Warburton, D., and Hindin, R. (1993)
  Cigarette Smoking and Trisomy 21 at Amniocentesis.

  Genetic Epidemiology 10:35–42.
- Hatch, M.C., Shu, X.-O., McLean, D.E., Levin, B., Begg, M., Reuss, L., and Susser, M. (1993)
   Maternal Exercise during Pregnancy, Physical Fitness, and Fetal Growth.
   American Journal of Epidemiology 137(10):1105–1114.
- 43. Hatch, M.C., Chen, C.-J., Levin, B., Ji, B.-T., Yang, G.-Y., Hsu, S.-W., Wang, L.-W., Hsieh, L.-L., and Santella, R. (1993)
  Urinary Aflatoxin Levels, Hepatitis-B Virus Infection and Hepatocellular Carcinoma in Taiwan. *International Journal of Cancer* 54:931–934.
- 44. Kairam, R., Kline, J., Levin, B., Brambilla, D., Coulter, D., Kuban, K., Lansky, L., Marshall, P., Velez-Borras, J., and Rodriguez, E. (1993). Reliability of Neurologic Assessment in a Collaborative Study of HIV Infection in Children. Annals of the New York Academy of Sciences 693:123–140.
- 45. \*Finkelstein, M.O. and Levin, B. (1994)
  Proportional Hazard Models for Age Discrimination Cases.

  \*Jurimetrics Journal 34:153–171.
- 46. Olson, S., Kelsey, J.L., Pearson, T.A., and Levin, B. (1994)
  Characteristics of a Hypothetical Group of Hospital Controls for a Case–Control Study. *American Journal of Epidemiology* 139(3):302–311.

47. Kline, J., Levin, B., Silverman, J., Kinney, A., Stein, Z., Susser, M., and Warburton, D. (1994).

Letter to the Editor: in re 270:2940 and 270:2973, Journal of the American Medical Association 272(1):27–28.

- 48. \*Levin, B. (1995)
  - Accounting for the Effects of Both Group– and Individual–Level Variables in Community–Level Studies. (Annotation)

    American Journal of Public Health 85(2):163–164.
- 49. Kline, J., Levin, B., Kinney, A., Stein, Z., Susser, M., and Warburton, D. (1995). Cigarette Smoking and Spontaneous Abortion of Known Karyotype: Precise Data but Uncertain Inferences. *American Journal of Epidemiology* 141:417–427.
- 50. Reuss, M.L., Kline, J., Santos, R., Levin, B., and Timor-Tritsch, I. (1996).

  Age and the Ovarian Follicle Pool Assessed with Transvaginal Sonography. *American Journal of Obstetrics and Gynecology* 174:624–627.
- 51. \*Levin, B. (1996).
  On the Holms, Simes, and Hochberg Multiple Test Procedures. (Annotation)

  \*American Journal of Public Health 86:628–629.
- \*Finkelstein, M.O., Levin, B., and Robbins, H. (1996).

  Clinical and Prophylactic Trials with Assured New Treatment for Those at Greater Risk. Part I Introduction.

  American Journal of Public Health 86:691–695.
- \*Finkelstein, M.O., Levin, B., and Robbins, H. (1996).

  Clinical and Prophylactic Trials with Assured New Treatment for Those at Greater Risk. Part II Examples.

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