Curriculum Vitae

Robert L. (Bob) Obenchain, PhD, FASA

Risk Benefit Statistics LLC.

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Employment History

Employer name:	Eli Lilly and Company, Indianapolis, IN.
Position/title:	Senior Research Advisor, Outcomes Research, US Medical Division
Dates in Job:	1990-2007 (retirement)
Core Responsibilities:	Design and Analysis of (Nonstandard) Health Outcomes Studies
Employer name:	GlaxoSmithKline, Research Triangle Park, NC
Position/title:	Manager of Non-Clinical Statistics, Management Information Systems Division
Dates in Job:	1986-1990
Core Responsibilities:	Statistical methods for Quality Assurance at Zebulon; Stability Studies
Employer name:	Bell Communications Research, Red Bank, NJ
Position/title:	Member of Technical Staff, Quality Assurance Technology Center
Dates in Job:	1981-1986
Core Responsibilities:	Development and Application of QA Methods, Supplier Data Validation
Employer name:	AT&T Bell Laboratories, Holmdel, NJ
Position/title:	Member of Technical Staff, Applied Statistics Department
Dates in Job:	1969-1981
Core Responsibilities:	Applied Statistical Consulting and Methodological Research

Education

Institution:	University of North Carolina, Chapel Hill
Degree:	Doctorate in Mathematical Statistics
Date:	June 1969
Institution:	Northwestern University, McCormick School of Engineering & Applied Science
Degree:	Bachelor of Science (with distinction)
Date:	June 1964

Professional Affiliations	
Description	Date
American Statistical Association (ASA) Fellow (elected 1997)	1967-present
Institute of Mathematical Statistics (IMS)	1967-present
Professional Activities	
Description	Date
President, Central Indiana Chapter of the American Statistical Association	2001, 1997, 1993
Chairman, Cost-Effectiveness Inference Working Group (CEIWG) sponsored by Health Outcomes working group of PhRMA, by the Biopharmaceutical and Health Policy Statistics sections of ASA and by ISPOR.	1997-2005

Selected Publications of Obenchain RL:

Analysis of Observational (Nonrandomized) Data

1. Obenchain RL**,** Melfi CA. Propensity score and Heckman adjustments for treatment selection bias in database studies. **1997 Proceedings of the Biopharmaceutical Section.** Alexandria, VA: American Statistical Association. 1998; 297-306.

2. Browne RA, Melfi CA, Crogan TW, Obenchain RL, Morris L, Smith J, Gerlach J, Copeland K, Robinson RL. Data analysis issues to consider when conducting research using physician- reported antidepressant claims. **Drug Benefit Trends** 1998; 5: 33-42.

3. Croghan TW, Obenchain RL**,** Crown WE. What does treatment of depression really cost? **Health Affairs** 1998; 17(4): 198-208.

4. Crown WE, Obenchain RL**,** Engelhart L, Lair TJ, Buesching DP, Croghan TW. The application of sample selection models in evaluating treatment effects: the case for examining the effects of antidepressant medication. **Statistics in Medicine** 1998; 17, 1943-1958.

5. Kereiakes DJ, Obenchain RL, Barber BL, Smith A, McDonald M, Broderick TM, Runyon JP, Shimshak TM, Schneider JF, Hattemer CH, Roth EM, Whang DD, Cocks DL, Abbottsmith CW. Abciximab provides cost effective survival advantage in high volume interventional practice. **Am Heart J** 2000; 140: 603-610.

6. Tai-Seale M, Croghan TM, Obenchain RL. Determinants of antidepressant treatment compliance: implications for policy. **Medical Care Research and Review** 2000; 57: 491-512.

7. Hall JA, Summers KH, Obenchain RL. Cost and utilization comparisons among propensity score matched insulin lispro and regular insulin users. **Journal of Managed Care Pharmacy** 2003; 3: 263-268.

8. Obenchain RL. Unsupervised Propensity Scoring: NN and IV Plots. **2004 JSM Proceedings on CD-ROM.** (8 pages.) Alexandria, VA: American Statistical Association. 2005.

9. Chen K, Chang EY, Summers KH, Obenchain RL, Yu-Isenberg KS, Sun P. Comparison of Costs and Utilization Between Users of Insulin Lispro Versus Users of Regular Insulin in a Managed Care Setting. **Journal of Managed Care Pharmacy** 2005; 11(5): 376-382.

10. Obenchain RL. ***USPS***: R package for Unsupervised and Supervised Propensity Scoring and Instrumental Variable Adjustment. ***http://www.r-project.org*** 2005.

11. Obenchain RL. JMP Scripts for "Local Control" and "Artificial LTD Distribution" calculations. ***http://www.math.iupui.edu/~indyasa/bobodown.htm*** 2006.

12. Obenchain RL. Identifying Meaningful Patient Subgroups via Clustering - Sensitivity Graphics. **2006 JSM Proceedings on CD-ROM.** (6 pages.) Alexandria, VA: American Statistical Association. 2007.

13. Obenchain RL. Use of Observational Data in Pharmacoeconomic Analyses: Adjustment for Treatment Selection Bias and Confounding. (Invited Review Paper.) **PharmacoEconomics** 2008; Under Review (scheduled for June.)

Cost-Effectiveness Statistical Inference

1. Obenchain RL, Melfi CA, Croghan TW, Buesching, DP. Bootstrap analyses of cost effectiveness in antidepressant pharmacotherapy. **PharmacoEconomics** 1997; 11: 464-472.

2. Sacristan JA, Obenchain RL. Reporting cost-effectiveness analyses with confidence. **JAMA** 1997; 277: 375.

3. Obenchain RL, Sacristan JA. In reply to "The negative side of cost-effectiveness ratios." **JAMA** 1997; 277: 1931-1933.

4. Obenchain RL, Johnstone BM. Mixed-model imputation of cost data for early discontinuers from a randomized clinical trial. **Drug Information Journal** 1999; 33(1): 191-209.

5. Obenchain RL. **ICEplane User's Manual:** Microsoft windows software for calculation of bootstrap ICE confidence and tolerance regions and graphical displays on the cost-effectiveness plane. [Copyright assigned to **Pharmaceutical Research and Manufacturers of America (PhRMA**.)] http://www.math.iupui.edu/ ~indyasa/bobodown.htm 1997-2005.

6. Obenchain RL. Resampling and multiplicity in cost-effectiveness inference. **J Biopharm Stat** 1999; 9(4): 563-582.

7. Sacristan JA, Gilaberte I, Boto B, Buesching DP, Obenchain RL, Demitrack M, Perez Sola V, Alvarez E, and Artigas F. Cost-effectiveness of fluoxetine plus pindolol in patients with major depressive disorder: results from a randomized, double blind clinical trial. **Int Clin Psychopharmacol** 2000; 15: 107-113.

8. Obenchain RL. Incremental Cost-Effectiveness (ICE) Preference Maps. **2001 JSM Proceedings on CD-ROM.** (10 pages.) Alexandria, VA: American Statistical Association. 2002.

9. Obenchain RL, Robinson RL, Swindle RW. Cost-Effectiveness Inferences from Bootstrap Quadrant Confidence Levels: Three Degrees of Dominance. **J Biopharm Stat** 2005; 15(3): 419-436.

10. Obenchain RL. ***ICEinfer:*** R package for Statistical Inference (wedge-shaped, equivariant confidence regions; VAGR acceptability and ALICE curves) and Economic Preference variation in Incremental Cost-Effectiveness (ICE) analyses. ***http://www.r-project.org*** 2007.

11. Obenchain RL. ICE Preference Maps: Nonlinear Generalizations of Net Benefit and Acceptability. **Health Services and Outcomes Research Methodology**. 1/9/2008; DOI: 10.1007/s10742-007-0027-2, SpringerLink (free access.)

Shrinkage Estimation in Ill-conditioned (Multicollinear) Regression Models

1. Obenchain RL. Residual optimality: ordinary vs. weighted vs. biased least squares. **J Amer Stat Assoc** 1975; 70: 375-379.

2. Obenchain RL. Ridge analysis following a preliminary test of the shrunken hypothesis. **Technometrics** 1975; 17: 431-441 [Discussion by G. C. McDonald, 443-445.]

3. Obenchain RL. Classical F-tests and confidence regions for ridge regression. **Technometrics** 1977; 19: 429-439.

4. Obenchain RL. Good and optimal ridge estimators. **Annals of Statistics** 1978; 6: 1111-1121.

5. Obenchain RL. Maximum likelihood ridge displays. **Communications in Statistics - A** 1984; 13; 227-240.

6. Obenchain RL. Ridge regression systems for MS-DOS personal computers. **The American Statistician** 1991; 45: 245-246.

7. Obenchain RL. Maximum likelihood ridge regression. **Stata Technical Bulletin** 1995; 28: 22-35.

8. Obenchain RL. ***RXshrink***: R package for maximum likelihood shrinkage in generalized (2-parameter) ridge and least angle regression (LAR.) ***http://www.r-project.org*** 2005.