

CURRICULUM VITAE

WILLIAM F. ROSENBERGER
Fellow, IMS, ASA
University Professor
Department of Statistics
School of Computing
George Mason University

Personal Information

Date of birth: April 26, 1964, Silver Spring, MD
Place of residence: Arlington, VA

I am an academic biostatistician with over 25 years of experience in methodological research, teaching, and doctoral student mentoring, and served as department chair for 13 years (2006 – 2019). I have written two books on randomization in clinical trials. Recently I have moved into methodology for the design of rare disease clinical trials, serving on an international advisory board for a large European Union project on small population trials. I have also served on 20 data and safety monitoring boards for clinical trials sponsored by both government and industry. I was named the 15th Armitage Lecturer at Cambridge University and am an elected Fellow of the Institute of Mathematical Statistics and the American Statistical Association, and was recently elected the North American Editor of the tier-1 biostatistical methodology journal *Biometrics*.

Contact information

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I. Education

Ph.D.	1992	The George Washington University	Mathematical Statistics
M.Phil.	1990	The George Washington University	Mathematical Statistics
B.A. (<i>summa cum laude</i>)			
	1986	Towson State University	Mathematics/Geography

II. Experience in higher education

George Mason University, Fairfax, VA
2014 – present University Professor
2006 – 2019 Chairman, Department of Statistics
2006 – 2014 Professor, Statistics
2005 – 2006 Professor, Applied and Engineering Statistics

University of Maryland, Baltimore County, Baltimore, MD
2005 – 2006 Adjunct Professor, Mathematics and Statistics
2003 – 2005 Professor, Mathematics and Statistics
1999 – 2003 Associate Professor (with tenure), Mathematics and Statistics
1995 – 1999 Assistant Professor, Mathematics and Statistics

University of Maryland School of Medicine, Baltimore, MD
2004 – 2006 Adjunct Professor, Epidemiology and Preventive Medicine

1999 - 2003 Adjunct Associate Professor, Epidemiology and Preventive Medicine
 1996 - 1999 Adjunct Assistant Professor, Epidemiology and Preventive Medicine

The George Washington University, Washington, DC
 1992 - 1995 Assistant Research Professor, Statistics
 1991 Assistant Professorial Lecturer, Statistics
 1986 - 1989 Graduate Teaching Assistant, Statistics

Visiting appointments:

Visiting Scholar, Department of Statistical Science "Paolo Fortunati", University of Bologna, ITALY, Spring 2022
 Visiting Scholar, The EMMES Corporation, Rockville, MD, Spring 2015
 Visiting Scholar, Department of Mathematics, University of Southern California, Spring 2015
 Fulbright Scholar, RWTH Aachen University, GERMANY, Fall 2014
 Theodore von Karman Fellow, RWTH Aachen University, GERMANY, Summer 2013
 Visiting Fellow, Isaac Newton Institute, Cambridge University, Summer 2011
 Visiting Lecturer, National Institute of Public Health, Tokyo, JAPAN, 2007
 Summer School Instructor, Bocconi University Summer School in Statistics and Probability, Torgron, Italy, 2005
 Senior Member, Institute for Mathematical Sciences, National University of Singapore, Summer 2002
 Visiting Associate Professor of Biostatistics, UCLA School of Public Health, Spring 2002
 Visiting Research Scholar, The EMMES Corporation, Fall 2001
 Visiting Fellow, Institute of Public Health, Cambridge University, Summer 1996
 Visiting Scholar, Department of Statistics, University of North Carolina at Chapel Hill, Summer 1995

III. Experience in other than higher education

The George Washington University, Washington, DC
 1990 - 1992 Research Associate, The Biostatistics Center
 1990 Statistical Consultant, Computer Information Resource Center

Information Management Services, Inc., Silver Spring, MD
 1990 Biostatistician/Statistical Analysis
 1986 - 1990 Programmer

National Cancer Institute
 1985 Summer Fellow

Maryland National Capital Park and Planning Commission
 1984 Town Planning Intern

IV. Honors and awards received

Professional Awards and Recognition:

North American Editor, *Biometrics*, 2021-2023

15th Armitage Lecturer, University of Cambridge, 2017

University Professor, George Mason University, 2014

As discussed in George Mason University's Faculty Handbook: "From time to time the University will encounter opportunities to recognize current members of the faculty or

appoint to its faculty women and men of great national or international reputation. The rank of University Professor is reserved for such eminent individuals."

Citation: For theoretical contributions to statistics in the areas of experimental design and sequential analysis; he has been recognized locally, nationally, and internationally for his research and scholarship.

Fulbright Scholar, Aachen, Germany, 2014

Outstanding Research Faculty 2012, Volgenau School of Engineering, 2012

Election as Fellow of the Institute of Mathematical Statistics, 2011

Citation: For major contributions in sequential analysis and clinical trials, involving rigorous treatment of adaptive randomization and response-adaptive design and including development of a framework for optimal allocations, work that has been accepted by practitioners as the standard in the field.

Election as Member of the International Statistical Institute, 2009

Thomas W. Teal Statistical Publishing Award, Drug Information Association, 2006

Election as Fellow of the American Statistical Association, 2005

Citation: For important contributions to the statistical theory underlying the design of clinical trials; in particular, response-adaptive randomization; for service on clinical trials monitoring boards; and for excellence in teaching and mentoring.

Election to Honor Society of Phi Kappa Phi as Distinguished Faculty Scholar, UMBC, 2004

Outstanding Professional and Scholarly Title of 2002, Mathematics and Statistics Discipline, for *Randomization in Clinical Trials*, Association of American Publishers, 2003.

David P. Byar Young Investigator Award, Biometrics Section, American Statistical Association, 1995.

One award annually in memory of David P. Byar, an internationally known biostatistician, who made significant contributions to the development and application of statistical methods during his career at the National Cancer Institute. The award is given to a young investigator, within 3 years of the Ph.D. degree.

Student Awards:

Jerome Cornfield Award, Department of Statistics/Computer and Information Systems, The George Washington University, 1991

Outstanding Graduate Student, Washington Statistical Society, 1990

Graduate Fellowship, Graduate School of Arts and Sciences, The George Washington University, 1986 - 1990

Summa cum laude, Towson State University, 1986

Catherine I. Britt Memorial Scholarship, 1985

Presidential Scholar, Towson State University, 1982 - 1986

Maryland State Distinguished Scholar, 1982 - 1986

V. Research support

George Mason University

2019 - 2020	\$26,613	Claude D. Pepper Older Americans Independence Center National Institute of Aging Principal Investigator, Subcontract to UMBC
2018 - 2021	\$81,666	Defining the Neural Circuitry of Agency Deficits in Psychotic Disorders National Institute of Mental Health Principal Investigator, Subcontract to UC Davis
2012 - 2015	\$1,810,754	Pathogenesis and Pathophysiological Mechanisms of Myofascial Trigger Points National Institute of Arthritis and Musculoskeletal and Skin Diseases Co-Investigator (Share: \$76,000)
2010 - 2013	\$409,191	Statistical Methods for Cancer Research National Cancer Institute Principal Investigator
2009 - 2015	\$240,716	HANDLS Scan Substudy: Race, Socioeconomic Status, and the Brain National Institute of Aging Principal Investigator, Subcontract to UMBC
2009 - 2012	\$134,000	Topics in the Theory of Randomization II National Science Foundation Principal Investigator
2009	\$4,539	Biostatistical Support for KAI Research Projects KAI Research, Inc. Principal Investigator
2005 - 2009	\$189,000	Hypertension, Cognition, and the Brain in Older Adults National Institute of Aging Principal Investigator, Subcontract from UMBC
2005 - 2008	\$160,000	Topics in the Theory of Randomization National Science Foundation Principal Investigator
2005 - 2006	\$25,200	Design-Directed Statistical Methodology for Phase I Clinical Trials in Cancer National Cancer Institute Principal Investigator
University of Maryland Baltimore County		
2002 - 2005	\$113,000	Variability, Optimality, Power: A Template for Comparison of Response-Adaptive Randomization Procedures National Science Foundation Subcontract to University of Virginia
2000 - 2005	\$606,166	Design-Directed Statistical Methodology for Phase I

		<i>Clinical Trials in Cancer</i> National Cancer Institute Principal Investigator
1999 - 2000	\$31,451	Supplement to <i>New Designs and Statistical Methods for NIDDK Studies</i> for mentoring a minority graduate research assistant
1995 - 2000	\$382,000	<i>New Designs and Statistical Methods for NIDDK Studies</i> National Institute of Diabetes and Digestive and Kidney Diseases FIRST award Principal Investigator

George Washington University

1993 - 1994	\$116,000	<i>Statistical New Drug Application for Captopril in Diabetic Nephropathy</i> Bristol-Myers Squibb Co. Principal Investigator
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VI. Graduate students

Ph.D. in Statistics:

Completed Students (20):

Xiao Tan	<i>Handling Missing Data in Randomation-Based Inference</i> Ph.D. degree received May 2022
Zhantao Lin	<i>Inference for Two-Stage Designs with Application to Enrichment</i> Ph.D. degree received May 2020
Li Yang	<i>A Two-Stage Covariate-Adjusted Response-Adaptive Enrichment Design</i> Ph.D. degree received August 2019
Yanying Wang	<i>Randomization Tests in Randomized Clinical Trials</i> Ph.D. degree received August 2019
Hui Shao	<i>Exact Properties of Restricted Randomization Procedures</i> Ph.D. degree received December 2015
Lei Gao	<i>Bayesian Dose-Finding Procedure Based on Information Criterion and Efficacy-Toxicity Trade-offs</i> Ph.D. degree received May 2014
Parwen Parhat	<i>Randomization Tests for Regression Models in Clinical Trials</i> Ph.D. degree received May 2013
Yang Wang	<i>Optimal Randomization Procedures for Clinical Trials</i> Ph.D. degree received August 2012
Victoria Plamadeala	<i>Randomization-Based Inference for Sequential Clinical Trials Using Biased Coin Randomization</i> Ph.D. degree received December 2010

- Zorayr Manukyan Sequential Designs for Estimating Toxicity and Efficacy in a Dose-Response Setting
Ph.D. degree received August 2009
- Tigran Markaryan Exact Distributional Properties of Efron's Biased Coin Design With Application to Clinical Trials
Ph.D. degree received May 2009
- Oleksandr Sverdlov Handling Covariates in the Design of Clinical Trials
Ph.D. degree received May 2007
- Guohui Liu Sequential Designs for Logistic Dose-Response Experiments
Ph.D. degree received May 2006
- Lanju Zhang Response-Adaptive Randomization in Clinical Trials with Continuous and Survival Outcomes
Ph.D. degree received January 2006
ASA Fellow
- Yevgen Tymofeyev Optimal Allocation for Multi-Treatment Clinical Trials
Ph.D. degree received May 2005
- Yanqiong Zhang Sequential Monitoring of Randomization Tests
Ph.D. degree received January 2005
- Ranjan K. Paul Random Walk Rules for Clinical Trials with Nonstandard Situations
Ph.D. degree received August 2001
- Inna Perevozskaya Constrained Bayesian Optimal Designs for Phase I Clinical Trials
Ph.D. degree received January 2001
- Anastasia V. Ivanova A Birth and Death Urn for Randomized Clinical Trials
Ph.D. degree received January 1998
Current position: Professor of Biostatistics, University of North Carolina, Chapel Hill, NC
ASA Fellow
- Vladimir A. Mats Design and Likelihood Based Estimation for Binary Response Experiments Under Ethical Constraints, With Application to Phase I Clinical Trials
Ph.D. degree received January 1998
- M.S. in Applied Statistics**
- Lou Ehudin (d. 2003) Exploring the Eigenstructure of the Design Matrix of the Generalized Polya Urn, Fall 2000
- Michelle Olaes Optimal Adaptive Designs for Binary Response Trials, Spring 2000
- Cherice Harper Optimal Adaptive Designs for Binary Response Trials, Spring 2000

VII. Publications

Authored Books:

Rosenberger, W. F. and Lachin, J. M. (2016). *Randomization in Clinical Trials: Theory and Practice*. New York: John Wiley and Sons.

Hu, F. and Rosenberger, W. F. (2006). *The Theory of Response-Adaptive Randomization in Clinical Trials*. New York: John Wiley and Sons.

Rosenberger, W. F. and Lachin, J. M. (2002). *Randomization in Clinical Trials: Theory and Practice*. New York: John Wiley and Sons. (See Honors and Awards Section)

Edited Books

Flournoy, N., Rosenberger, W. F., Wong, W. K., eds. (1998). *New Developments and Applications of Experimental Design*. Hayward, CA: Institute of Mathematical Statistics.

Flournoy, N. and Rosenberger, W. F., eds. (1995). *Adaptive Designs*. Hayward, CA: Institute of Mathematical Statistics.

Articles in refereed journals:

N.B. Here I list all articles in refereed journals. Bolded authors are graduate students. The articles are divided into four categories:

- [S] -- articles appearing in theoretical statistics journals;
- [B] -- articles appearing in biostatistical methodology journals;
- [I] -- articles appearing in interdisciplinary journals;
- [RP] -- articles appearing in refereed proceedings.

2021

105. [S] **Lin, Z.**, Flournoy, N., and Rosenberger, W. F. "Inference for an Adaptive Enrichment Design." *Annals of Statistics*, in press.

2020

105. [S] Rosenberger, W. F. "Sequential Design and Analysis in the Randomized Clinical Trial: A Historical Perspective." *Sequential Analysis*, 39, 295-306.
104. [S] **Lin, Z.**, Flournoy, N., and Rosenberger, W. F. "Random Norming Aids Analysis of Non-linear Regression Models with Sequential Informative Dose Selection." *Journal of Statistical Planning and Inference*, 206, 29-42.
103. [B] Hilgers, R.-D., Manolov, M., Heussen, N., and Rosenberger, W. F. "The Design and Analysis of Stratified Clinical Trials in the Presence of Bias," *Statistical Methods in Medical Research*, 29, 1715-1727.
102. [B] **Wang, Y.**, Rosenberger, W. F. "Randomization-Based Interval Estimation in Randomized Clinical Trials." *Statistics in Medicine*, 39, 2843-2854.

2019

101. [B] **Wang, Y.**, Rosenberger, W. F., and Uschner, D. "Randomization Tests for Multi-armed Randomized Clinical Trials," *Statistics in Medicine*, 39, 494-509.
100. [B] Rosenberger, W. F., Uschner, D., and **Wang, Y.** "Randomization: the Forgotten Component of the Randomized Clinical Trial," *Statistics in Medicine*, 38, 1-30 (with discussion).

99. [B] Wang, Y., Rosenberger, W. F., and Uschner, D. "Randomization-Based Inference and the Choice of Randomization Procedures", *Statistical Papers*, 60, 45-54.
98. [I] Beatty Moody, D. L., Taylor A. D., Leibel, D. K., Al-Najjar, E., Katzel, L. I., Davatzikos, C., Gullapalli, R. P., Seliger, S. L., Kouo, T., Erus, G., Rosenberger, W. F., Evans, M. K., Zonderman, A. B., Waldstein, S. R. "Lifetime Discrimination Burden, Racial Discrimination, and Subclinical Cerebrovascular Disease among African Americans," *Health Psychology* 38, 64-74.
97. [I] Shaked, D., Beatty Moody, D. L., Millman, Z., Rosenberger, W. F., Shao, H., Katzel, L. I., Davatzikos, C., Gullapalli, R. P., Seliger, S. L., Eras, G., Evans, M. K., Zonderman, A. B., Waldstein, S. R. "Sociodemographic Disparities in Coricolicmbic Structures, *PLoS ONE*, 14, 1-22.

2018

96. [S] Aletti, G., Ghiglietti, A., and Rosenberger, W. F. "Nonparametric Covariate-Adaptive Design Based on a Functional Urn Model," *Annals of Statistics*, 46, 3838-3866.
95. [B] Villar, S. S. and Rosenberger, W. F. "Covariate-Adjusted Response-Adaptive Randomization for Multi-arm Clinical Trials Using a Modified Forward Looking Gittins Index Rule," *Biometrics*, 74, 49-57.

2017

94. [S] Ghiglietti, A., Vidyashankar, A. N., and Rosenberger, W. F. "Central Limit Theorems for an Adaptive Randomly Reinforced Urn Model," *Annals of Applied Probability*, 27, 2956-3003.
93. [I] Hilgers, R.-D., Uschner, D., Rosenberger, W. F., and Heussen, N. "ERDO—A Framework to Select an Appropriate Randomization Procedure for Clinical Trials. *BMC Medical Research Methodology*, 17, 159.
92. [I] Gerber, L. H., Sikdar, S., Aredo, J. V., Armstrong, K., Rosenberger, W. F., Shao, H., and Shah, J. P. "Beneficial Effects of Dry Needling for Treatment of Chronic Myofascial Pain Persist for 6 Weeks After Treatment Completion," *Physical Medicine and Rehabilitation*, 9, 105-112.
91. [I] Waldstein, S., Dore, G. A., Davatzikos, C., Katzel, L. I., Gullapalli, R., Seliger, S. L., Kouo, T., Rosenberger, W. F., Erus, G., Evans, M. K., and Zonderman, A. B. "The Differential Associations of Socioeconomic Status with Brain Volumes in African Americans and Whites," *Psychosomatic Medicine*, 79, 327-335.

2016

90. [B] Galbete, A. and Rosenberger, W. F. On the Use of Randomization Tests Following Adaptive Designs," *Journal of Biopharmaceutical Statistics*, 26, 466-474.
89. [I] Wendell, C. R., Zonderman, A. B., Katzel, L. I., Rosenberger, W. F., Plamadeala, V. V., Hosey, M. M., and Waldstein, S. R. "Nonlinear Associations Between Plasma Cholesterol Levels and Neuropsychology Function," *Neuropsychology*, 30, 980-987.

88. [I] Moatti, M., Chevret, S., Zohar, S., and Rosenberger, W. F. "A Bayesian Hybrid Adaptive Randomisation Design for Clinical Trials with Survival Outcomes," *Methods of Information in Medicine*, 55, 4-13.
87. [RP] Shao, H. and Rosenberger, W. F. "Properties of the Random Block Design for Clinical Trials," In *mODa11 - Advances in Model-Oriented Design and Analysis*, Heidelberg: Physical-Verlag, 225-234.

2015

86. [S] Rosenberger, W. F. "A Conversation with Nancy Flournoy," *Statistical Science*, 30, 133-146.
85. [B] Kennes, L. N., Rosenberger, W. F., and Hilgers, R.-D. "Inference for Blocked Randomization Under a Selection Bias Model," *Biometrics*, 71, 979 -- 984.
84. [B] Baldi Antognini, A., Rosenberger, W. F., Wang, Y., and Zagoraiou, M. "Exact Optimum Coin Bias in Efron's Randomization Procedure," *Statistics in Medicine*, 34, 3760--3768.
83. [I] Gerber, L. H., Shah, J., Rosenberger, W., Armstrong, K., Turo, D., Otto, P., Heimur, J., Thaker, N., and Sikdar, S. "Dry Needling Alters Trigger Points in the Upper Trapezius Muscle and Reduces Pain in Subjects with Chronic Myofascial Pain," *Physical Medicine and Rehabilitation*, 7, 711-720.
82. [I] Turo, D., Otto, P., Hossain, M., Gebreab, T., Armstrong, K., Rosenberger, W. F., Shao, H., Shah, J. P., Gerber, L. H., and Sikdar, S. "Novel Use of Ultrasound Elastography to Quantify Muscle Tissue Changes After Dry Needling of Myofascial Trigger Points in Patients with Chronic Myofascial Pain," *Journal of Ultrasound in Medicine*, 34, 2149--2161.
81. [I] Sims Wright, R. C., Levy, S. T., Katzel, L. I., Rosenberger, W. F., Manukyan, Z., Whitfield, K. E., and Waldstein, S. R. "Fasting Glucose, Glucose Tolerance, and Neurocognitive Function Relations Among Non-diabetic Older Adults," *Journal of Clinical and Experimental Neuropsychology*, 37, 49--60.

2014

80. [B] Parhat, P., Rosenberger, W. F., and Diao, G. "Conditional Monte Carlo Randomization Tests for Regression Models," *Statistics in Medicine*, 33, 3078-3088.
79. [B] Dong, T., Tang, L. L., and Rosenberger, W. F. "Optimal Sampling Ratios in Comparative Diagnostic Trials," *Journal of the Royal Statistical Society C*, 63, 499-514.
8. [I] Hu, F., Hu, Y., Ma, Z., and Rosenberger, W. F. "Adaptive Randomization for Balancing on Covariates," *WIREs: Computational Statistics*, 6, 288-303.
77. [I] Sims, R. C., Katzel, L. I., Lefkowitz, D. M., Siegel, E. L., Rosenberger, W. F., Manukyan, Z., Whitfield, K. E., and Waldstein, S. R. "Association of Fasting Glucose with Subclinical Cerebrovascular Disease Among Non-diabetic Older Adults," *Diabetic Medicine*, 6, 691-698.

2013

76. [S] **Sverdlov, O.** and **Rosenberger, W. F.** "On Recent Advances in Optimal Allocation Designs in Clinical Trials," *Journal of Statistical Theory and Practice*, 7, 753-773.
75. [B] **Flournoy, N., Haines, L. M., and Rosenberger, W. F.** "A Graphical Comparison of Response-Adaptive Randomization Procedures," *Statistics in Biopharmaceutical Research*, 5, 126-141.
74. [B] **Sverdlov, O.** and **Rosenberger, W. F.** "Utility of Covariate-Adjusted Response-Adaptive Randomization in Survival Trials," *Statistics in Biopharmaceutical Research*, 5, 38-53.
73. [I] **Sverdlov, O.** and **Rosenberger, W. F.** "Randomization in Clinical Trials: Can We Eliminate Bias?," *Clinical Investigation*, 3, 37-47.
72. [RP] **Gao, L.** and **Rosenberger, W. F.** "Adaptive Bayesian Design with Penalty Based on Toxicity-Efficacy Response," In *mODa 10 - Advances in Model-Oriented Design and Analysis*, Heidelberg: Physica-Verlag, 91-98.

2012

71. [S] **Plamadeala, V.** and **Rosenberger, W. F.** "Sequential Monitoring With Conditional Randomization Tests," *Annals of Statistics*, 40, 30-44.
70. [B] **Rosenberger, W. F., Sverdlov, O., and Hu, F.** "Adaptive Randomization for Clinical Trials," *Journal of Biopharmaceutical Statistics*, 22, 719-736.
69. [I] **Waldstein, S. R., Wendell, C. R., Lefkowitz, D. M., Siegel, E. L., Rosenberger, W. F., Spencer, R. J., Manukyan, Z., and Katzel, L. I.** "Interactive Relations of Blood Pressure and Age to Subclinical Cerebrovascular Disease," *Journal of Hypertension*, 30, 2352-2356.

2010

68. [S] **Markaryan, T.** and **Rosenberger, W. F.** "Exact Properties of Efron's Biased Coin Randomization Procedure," *Annals of Statistics*, 38, 1546-1567.
67. [I] **Palsbo, S. E., Diao, G., Palsbo, G. A., Tang, L., Rosenberger, W. F., Mastal, M. F.** "Case-mix Adjustment and Enabled Reporting of the Health Care Experiences of Adults with Disabilities," *Archives of Physical Medicine and Rehabilitation*, 91, 1339-1346.
66. [I] **Rice, S. C., Hosey, M. M., Lefkowitz, D. M., Katzel, L. I., Siegel, E. L., Rosenberger, W. F., Waldstein, S. R.** "Depressive Symptoms are Associated with Subclinical Neurovascular Disease Among Healthy Older Women, Not Men," *American Journal of Geriatric Psychiatry*, 18, 940-947.
65. [I] **Waldstein, S. R., Lefkowitz, D. M., Siegel, E. L., Rosenberger, W. F., Spencer, R. J., Tankard, C. F., Manukyan, Z., Gerber, E. J., and Katzel, L. I.** "Reduced Cerebral Blood Flow in Older Men with Higher Levels of Blood Pressure," *Journal of Hypertension*, 28, 993-998.
64. [RP] **Manukyan, Z.** and **Rosenberger, W. F.** "D-Optimal Design for a Five-Parameter Logistic Model," In *Giovagnoli, A., Atkinson, A. C., and Torsney, B. (eds.), mODa9 Advances in Model Oriented Design and Data Analysis*, Heidelberg: Physica-Verlag, 113-120.

2009

63. [S] Roy, A., Ghosal, S., and Rosenberger, W. F. "Convergence Properties of Sequential Bayesian D-Optimal Designs," *Journal of Statistical Planning and Inference*, 139, 425-440.
62. [B] Liu, G., Rosenberger, W. F., and Haines, L. M. "Sequential Designs for Ordinal Phase I Clinical Trials," *Biometrical Journal*, 51, 335-347.

2008

61. [S] Rosenberger, W. F. and Sverdlov, O. "Handling Covariates in the Design of Clinical Trials," *Statistical Science*, 23, 404-419.
60. [S] Zhang, Y. and Rosenberger, W. F. "Sequential Monitoring of Conditional Randomization Tests: Generalized Biased Coin Designs," *Sequential Analysis*, 27, 234-253.

2007

59. [S] Tymofyeyev, Y., Rosenberger, W. F., and Hu, F. "Implementing Optimal Allocation in Sequential Binary Response Experiments," *Journal of the American Statistical Association*, 102, 224-234.
58. [B] Zhang, L. and Rosenberger, W. F. "Response-Adaptive Randomization for Survival Trials: The Parametric Approach," *Journal of the Royal Statistical Society C*, 53, 153-165.
57. [B] Zhang, Y., Rosenberger, W. F., and Smythe, R. T. "Sequential Monitoring of Randomization Tests: Stratified Randomization," *Biometrics*, 63, 865-872.

2006

56. [S] Hu, F., Rosenberger, W. F., and Zhang, L-X. "Asymptotically Best Response-Adaptive Randomization Procedures," *Journal of Statistical Planning and Inference*, 136, 1911-1922.
55. [B] Zhang, L. and Rosenberger, W. F. "Response-Adaptive Randomization for Clinical Trials With Continuous Outcomes," *Biometrics*, 62, 562-569.
54. [B] Liu, G., Rosenberger, W. F., and Haines, L. M. "Sequential Designs for Logistic Phase I Clinical Trials," *Journal of Biopharmaceutical Statistics*, 16, 605-621.

2005

53. [S] Zhang, Y. and Rosenberger, W. F. "On Asymptotic Normality of the Randomization-Based Logrank Test," *Journal of Nonparametric Statistics*, 17, 833-839.
52. [S] Zhang, Y., and Rosenberger, W. F. "On Linear Rank Tests for Truncated Binomial Randomization," *Statistics and Probability Letters*, 72, 83-92.
51. [I] Rosenberger, W. F., Canfield, G. C., Perevozakaya, I., Haines, L. M., and Hausner, P. "Development of Interactive Software for Bayesian Optimal Phase I Clinical Trial Design," *Drug Information Journal*, 39, 89-98.

2004

50. [B] Paul, R. K., Rosenberger, W. F., and Flournoy, N. "Nonparametric Estimation of Multiple Quantiles Following Nonparametric Phase I Clinical Trial Designs," *Statistics in Medicine*, 23, 2483-2495.
49. [B] Mugno, R., Zhu, W., and Rosenberger, W. F. "Adaptive Urn Designs for Estimating Several Percentiles of a Dose-Response Curve," *Statistics in Medicine*, 23, 2137-2150.
48. [I] Rosenberger, W. F. and Hu, F. "Maximizing Power and Minimizing Treatment Failures in Clinical Trials," *Clinical Trials*, 1, 141-147.
47. [RP] Tymofyeyev, Y., Rosenberger, W. F., and Hu, F. "Asymptotic Properties of Urn Designs for Three-Arm Clinical Trials," in *mODa7 Advances in Model Oriented Design and Data Analysis*, Heidelberg: Physica-Verlag, pp. 159-166.

2003

46. [S] Hu, F. and Rosenberger, W. F. "Optimality, Variability, Power: Evaluating Response-Adaptive Randomization Procedures for Treatment Comparisons," *Journal of the American Statistical Association*, 98, 671-678.
45. [S] Rosenberger, W. F. and Rukhin, A. L. "Bias Properties and Nonparametric Inference for Truncated Binomial Randomization," *Journal of Nonparametric Statistics*, 15, 455-465.
44. [S] Perevozskaya, I., Rosenberger, W. F., and Haines, L. M. "Optimal Design for the Proportional Odds Model," *Canadian Journal of Statistics*, 31, 1-11.
43. [B] Haines, L. M., Perevozskaya, I., and Rosenberger, W. F. "Bayesian Optimal Design for Phase I Clinical Trials," *Biometrics*, 59, 591-600.

2002

42. [S] Bai, Z. D., Hu, F., Rosenberger, W. F. "Asymptotic Properties of Adaptive Designs with Delayed Response," *Annals of Statistics*, 30, 122-139.
41. [S] Rosenberger, W. F. "Randomized Urn Models and Sequential Design," *Sequential Analysis* (with discussion), 21, 1-41.
40. [S] Rosenberger, W. F. and Hu, M. "On the Use of Generalized Linear Models Following a Sequential Design," *Statistics and Probability Letters*, 56, 155-161.
39. [B] Rosenberger, W. F. and Haines, L. M. "Competing Designs for Phase I Clinical Trials: A Review," *Statistics in Medicine*, 21, 2757-2770.
38. [B] Stallard, N., Rosenberger, W. F. "Exact Group-Sequential Designs for Clinical Trials With Randomized Play-the-Winner Allocation," *Statistics in Medicine*, 21, 467-480.

2001

37. [B] Rosenberger, W. F., Stallard, N., Ivanova, A., Harper, C., and Ricks, M. "Optimal Adaptive Designs for Binary Response Trials," *Biometrics*, 57, 909-913.

36. [B] Rosenberger, W. F., Vidyashankar, A. N., Agarwal, D. K. "Covariate-Adjusted Response-Adaptive Designs for Binary Response," *Journal of Biopharmaceutical Statistics*, 11, 227-236.
35. [I] Ivanova, A. and Rosenberger, W. F. "Adaptive Designs for Clinical Trials with Highly Successful Treatments," *Drug Information Journal*, 35, 1087-1093.
34. [RP] Rosenberger, W. F., Haines, L. M., Perevozskaya, I. (2001). "Constrained Bayesian Optimal Designs for Phase I Clinical Trials: Continuous Dose Space," in Atkinson, A. C., Hackl, P., and Mueller, W. G. (eds.), *mODa6 Advances in Model Oriented Design and Data Analysis*, Heidelberg: Physica-Verlag, pp. 209-217.
33. [RP] Haines, L. M., Clarke, G. P. Y., Gouws, E., and Rosenberger, W. F. (2001). "Optimal Design for the Testing of Anti-Malarial Drugs," in Atkinson, A. C., Hackl, P., and Mueller, W. G. (eds.), *mODa6 Advances in Model Oriented Design and Data Analysis*, Heidelberg: Physica-Verlag, pp. 119-126.

2000

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24. [I] Rosenberger, W. F. "Randomized Play-the-Winner Clinical Trials: Review and Recommendations," *Controlled Clinical Trials*, 20, 328-342.
23. [I] Palmer, C. R. and Rosenberger, W. F. "Ethics and Practice: Alternative Designs for Phase III Randomized Clinical Trials," *Controlled Clinical Trials*, 20, 172-186.

1998

22. [I] Grill, S. E., Rosenberger, W. F., Boyle, K., Cannon, M., and Hallett, M. "Perception of Timing of Kinesthetic Stimuli," *NeuroReport*, 9, 4001-4005.
21. [RP] Mats, V. A., Rosenberger, W. F., and Flournoy, N. "Restricted Optimality for Phase I Clinical Trials," in Flournoy, N., Rosenberger, W. F., and Wong, W. K. (eds.), *New Developments and Applications in Experimental Design*, Hayward, CA: Institute of Mathematical Statistics, pp. 50-61.

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20. [S] Rosenberger, W. F., Flournoy, N., and Durham, S. D. "Asymptotic Normality of Maximum Likelihood Estimators from Multiparameter Response-Driven Designs," *Journal of Statistical Planning and Inference*, 60, 69-76.
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18. [S] Matthews, P. C. and Rosenberger, W. F. "Variance in Randomized Play-the-Winner Clinical Trials," *Statistics and Probability Letters*, 35, 233-240.
17. [B] Durham, S. D., Flournoy, N., and Rosenberger, W. F. "A Random Walk Rule for Phase I Clinical Trials," *Biometrics*, 53, 745-760.
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14. [I] Flowers, J. L., Jacobs, J., Cho, E., Morton, A., Rosenberger, W. F., Evans, D., Imbembo, A. L., Bartlett, S. T. "Comparison of Open and Laparoscopic Live Donor Nephrectomy," *Annals of Surgery*, 226, 483-490 (with discussion).

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13. [S] Rosenberger, W. F. "New Directions in Adaptive Designs," *Statistical Science*, 11, 137-149.
12. [I] Rosenberger, W. F. "Dealing With Multiplicities in Pharmacoepidemiologic Studies," *Pharmacoepidemiology and Drug Safety*, 5, 95-100.

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11. [S] Flournoy, N., Durham, S. D., and Rosenberger, W. F. "Toxicity in Sequential Dose-Response Experiments," *Sequential Analysis*, 14, 217-227.
10. [B] Lan, K. K. G., Rosenberger, W. F., and Lachin, J. M. "Sequential Monitoring of Survival Data With the Wilcoxon Statistic," *Biometrics*, 51, 1175-1183.
9. [B] Rosenberger, W. F., Lachin, J. M., and Bain, R. P. "Nonparametric Test of Stochastic Ordering for Multiple Longitudinal Measures," *Journal of Biopharmaceutical Statistics*, 5, 235-243.

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7. [RP] Rosenberger, W. F. "Adaptive Designs in Clinical Trials: Some Issues With Emphasis on Asymptotic Inference," in Flournoy, N. and Rosenberger W. F. (eds.), *Adaptive Designs*, Hayward, CA: Institute of Mathematical Statistics, pp. 1-12.

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6. [S] Rosenberger, W. F. "Asymptotic Inference With Response-Adaptive Treatment Allocation Designs," *The Annals of Statistics*, 21, 2098-2107.
5. [B] Lan, K. K. G., Rosenberger, W. F., and Lachin, J. M. "Use of Spending Functions for Occasional or Continuous Monitoring of Data in Clinical Trials," *Statistics in Medicine*, 12, 2219-2231.
4. [I] Rosenberger, W. F. and Lachin, J. M. (1993). "The Use of Response-Adaptive Designs in Clinical Trials," *Controlled Clinical Trials*, 14, 471-484.

Pre-1993 (before doctorate)

3. [B] Baker, S. G., Rosenberger, W. F., and DerSimonian, R. (1992). "Closed-Form Estimates for Missing Counts in Two-Way Contingency Tables," *Statistics in Medicine*, 11, 643-657.
2. [I] Patterson, B. H., Block, G., Rosenberger, W. F., Pee, D., and Kahle, L. L. (1990). "Fruits and Vegetables in the American Diet: Data from the NHANES II Survey," *American Journal of Public Health*, 80, 1443-1449.
1. [I] Block, G., Rosenberger, W. F., and Patterson, B. H. (1988). "Calories, Fat, and Cholesterol: Intake Patterns in the U. S. Population by Race, Sex, and Age," *American Journal of Public Health*, 78, 1150-1155.

Other publications:

- Zhang, L. and Rosenberger, W. F. (2011). Adaptive Randomization in Clinical Trials. In *Design and Analysis of Experiments, Vol.3: Special Designs and Applications* (Hinkelmann, K., ed.). John Wiley, New York, Chapter 7.
- Zhang, L. and Rosenberger, W. F. (2011). Optimal response-adaptive randomization for clinical trials. In *Handbook of Adaptive Designs for Pharmaceutical and Clinical Development* (Chow, S.-C., Pong, A., eds.). CRC, Boca Raton, Chapter 15.
- Rosenberger, W. F. and Manukyan, Z. (2009). Commentary of 'Designs for dose-escalation trials with quantitative responses.' *Statistics in Medicine*, 28, 3751-3753.
- Zhang, Y. and Rosenberger, W. F. (2008). Sequential monitoring of randomization tests. In *Computational Methods in Biomedical Research* (Khattree, R. and Naik, D. N., eds.). Chapman and Hall/CRC, Boca Raton, pp. 261-296.
- Rosenberger, W. F. (2008). Discussion on "Second-Guessing Clinical Trial Designs," *Sequential Analysis*, 27, 24-25.
- Rosenberger, W. F. (2006). Book review of *Statistical Concepts and Applications in Clinical Medicine*, *Journal of the American Statistical Association*, 101, 404.

- Rosenberger, W. F. (2002). "Adaptive Survival Trials," In *Encyclopedia of Biopharmaceutical Statistics*, 16-17.
- Rosenberger, W. F. and Palmer, C. R. (1997). Book review of *Bayesian Methods and Ethics in a Clinical Trial Designs*, *Journal of the American Statistical Association*, 92, 384-385.

VIII. Professional activities

Clinical Trials Coordinating Center Activities

- Co-Principal Investigator, NIH/NIDDK Benign Prostatic Hyperplasia Trial, 1995
- Deputy Director, NIH/NIDDK Benign Prostatic Hyperplasia Pilot Study, 1992-1995
- Biostatistician, Aminoguanidine in Diabetic Nephropathy, 1994-1995
- Principal Investigator, Statistical NDA for Captopril in Diabetic Nephropathy, 1993-1994
- Statistician, Vesnarinone in Congestive Heart Failure, 1990-1992

Advisory Panels

- Member of 18 Data and Safety Monitoring Boards
- External Advisory Board, IDEAL Project, European Union, 2014-2017
- PHARMA Advisory Panel on Training Programs in Non-Standard Clinical Trials Designs, 2007
- American Mathematical Society Representative, National Security Agency Advisory Panel, 2002-2005

Conference organization

- Program Committee, International Workshop on Sequential Methodologies, Rouen, FRANCE, 2017
- Co-Organizer, Workshop on Design of Clinical Trials, Institute of Mathematical Sciences, National University of Singapore, 2011
- Local Organizer, Institute of Mathematical Statistics, 1999 Joint Statistical Meetings, Baltimore, MD.
- Co-Chair, Organizing Committee, "New Developments and Applications in Experimental Design," Joint AMS-IMS-SIAM Summer Conference in the Mathematical Sciences, Seattle, WA, 1997.
- Funding: Received \$22,500 from the National Science Foundation.
- Organizer, 1996 Mid-Atlantic Probability and Statistics Day, University of Maryland Baltimore County, Baltimore, MD, 1996.

Invited paper session organization

- Co-Organizer, Two invited paper sessions in honor of Nancy Flournoy's 70th Birthday, International Workshop on Sequential Methodologies, Rouen, FRANCE, 2017
- Organizer, Invited paper session, "Design and Analysis of Clinical Trials," Design and Analysis of Experiments 2009, Columbia, MO, 2009
- Co-Organizer, Invited paper session, "Sequential Design in Clinical Trials," International Workshop on Sequential Analysis, Troyes, FRANCE, 2009
- Co-Organizer, Invited workshop, "Ethics in Clinical Trials," Society for Clinical Trials, Arlington, VA, 2002

Organizer, Invited paper session, "New Likelihood-Based Methods with Application to Medical Studies," Joint Statistical Meetings, Baltimore, MD, 1999.
 Organizer, Invited paper session, "Design of Dose-Response Studies," Joint Statistical Meetings, Dallas, TX, 1998.
 Co-Organizer, Invited paper session, "New Standards for the Design of Clinical Trials," American Academy for the Advancement of Science Annual Meeting, Philadelphia, PA, 1998.
 Organizer, Invited paper session, "New Designs for Dose-Response Studies," ENAR Biometric Society meetings, Birmingham, AL, 1995.
 Organizer, Invited paper session, "Adaptive Designs," 58th Annual Meeting of the Institute of Mathematical Statistics, Montreal, CANADA, 1995.
 Co-Organizer, Invited paper session, "Adaptive Designs," Joint Statistical Meetings, Orlando, FL, 1995.

Professional Society Committees

Program Committee, Joint Statistical Meetings, 2010
 Program Committee, Society for Clinical Trials, 2004
 Student Scholarship Competition Review Committee, International Biometric Society, 2003
 Student Scholarship Competition Review Committee, Society for Clinical Trials, 2002
 American Statistical Association President's Committee on Research Funding in Statistics, 2000-2001.
 Chair, Public Health and Biostatistics Program, Washington Statistical Society, 1994-95.

Editorial Service

Editorial Board, *Pharmacoepidemiology and Drug Safety*, 1995-2000.
 Associate Editor, *Metrika*, 1999 - present.
 Editorial Board, *Sequential Analysis*, 2003 - present.
 Associate Editor, *Journal of Statistical Planning and Inference*, 2004-2011.
 Associate Editor, *Statistica Sinica*, 2005 - 2008.
 Co-Editor, Special Issue on Adaptive Designs in Clinical Trials, *Journal of Statistical Planning and Inference*, 2006.
 Associate Editor, *Biometrics*, 2011 - 2020.
 Statistical Reviewer, *PLOS-ONE*, 2013 - present.
 North American Editor, *Biometrics*, 2021 - present.

Society memberships

American Statistical Association (Fellow)
 Institute of Mathematical Statistics (Fellow)
 International Statistical Institute (Elected Member)
 International Biometric Society

Short courses

"Randomization in Clinical Trials: Theory and Practice", Bologna, ITALY, 2018
 "Randomization in Clinical Trials: Theory and Practice", Renmin University China, 2016
 "Randomization in Clinical Trials: Theory and Practice", U. S. Food and Drug Administration, 2015
 "Randomization in Clinical Trials", National Institutes of Public Health, Tokyo, JAPAN, 2007
 "Sequential Design and Analysis with Application to Clinical Trials", Bocconi University, Torgnon, ITALY, 2005

Invited Talks

I have given over 150 invited presentations worldwide.

IX. University Service

N.B. I do not include my 10 years of service for UMBC, except to say that I served as the elected faculty Senator for 6 years.

Associate Dean Search Committee, College of Health and Human Services, 2018
Chair, Chair's Executive Committee, 2015 – 2018
Chairman, Department of Statistics, 2006 – 2019
Chair, Civil Engineering Chair Reappointment Committee, 2013
Chair, Tenure Appeal Committee, 2012
Dean Search Committee, Volgenau School, 2011 – present
Chair, Computer Science Chair Search Committee, 2010
Volgenau School P&T Committee, 2009-2010
Chair, Applied Information Technology Chair Reappointment Committee, 2008
Chair, Hiring Committee, 2005
Representative to the Graduate Council, 2005 – 2006
New Building Committee, 2006 – 2009
New Library Steering Committee, 2007 – 2008