

Guogen Shan, Ph.D.

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Education

Sep. 2011	Ph.D. in Biostatistics, The State University of New York at Buffalo
Sep. 2009	M.A. in Biostatistics, The State University of New York at Buffalo
July 2007	M.S. in Bioinformatics, Nankai University, China
July 2004	B.S. in Mathematics, Nankai University, China

Employment

05/2021 – Present	Professor, University of Florida
07/2017 – 04/2021	Associate Professor (early tenured), University of Nevada Las Vegas
08/2012 – 06/2017	Assistant Professor (tenure-track), University of Nevada Las Vegas
10/2011 – 07/2012	Statistician, Brain Trauma Foundation, New York

Research Interest

Adaptive designs for cancer trials and Alzheimer's disease trials, platform designs, meta-analysis, exact test, exact confidence interval, statistical methods for combat sports, empirical likelihood, ROC curve analysis, copula, nonparametric tests, permutation test, reliability test, and efficient clinical designs.

Honors and Awards

1. Gamma Lambda Chapter of Delta Omega Honorary Society in Public Health, University at Buffalo, 2018
2. Excellence in Research, School of Community Health Sciences, UNLV, 2016
3. Excellence in Research, School of Community Health Sciences, UNLV, 2015
4. Outstanding Researcher, School of Community Health Sciences, UNLV, 2014
5. Excellence in Research, School of Community Health Sciences, UNLV, 2013
6. Rising Researcher Award, School of Community Health Sciences, UNLV, 2012
7. Faculty scholarship of the Western Users of SAS Software (WUSS) 2013
8. Travel Awards, University of Nevada Las Vegas, 2012-2016
9. Richard N. Schmidt Travel Award, Department of Biostatistics, SUNY at Buffalo, 2010-2011
10. Graduate Scholarship, The State University of New York at Buffalo, 2007-2011
11. Graduate Scholarship, Nankai University, Tianjin, China, 2004-2007
12. The third prize of Excellent Undergraduate Scholarship, Nankai University, Tianjin, China 2000-2004

Publications

Books

Shan, G. (2015). *Exact Statistical Inference for Categorical Data*. Academic Press by Elsevier, Eastbourne, UK.

Published or Accepted Manuscripts: Theory and Methods (76 total)

†Student supervised by myself

Published (accepted)

1. Shan, G., Bernick, C., Caldwell, J.Z. and Ritter, A., 2021. Machine learning methods to predict amyloid positivity using domain scores from cognitive tests. *Scientific Reports*, 11(1), pp.1-10.
2. Shan, G., & Wang, W. (2021). Advanced statistical methods and designs for clinical trials for COVID-19. *International Journal of Antimicrobial Agents*, 57(1), 106167.
3. Shan, G. (2021). Optimal two-stage designs based on restricted mean survival time for a single-arm study. *Contemporary Clinical Trials Communications*, 21, 100732.

4. **Shan, G.** (2020). Accurate confidence intervals for proportion in studies with clustered binary outcome. *Statistical Methods in Medical Research*, 0962280220913971.
5. **Shan, G.** & Wang, W. (2020). Advanced statistical methods and designs for clinical trials for COVID-19. *International Journal of Antimicrobial Agents*, Article ID: 106167.
6. **Shan, G.** (2020). Estimation of bias-corrected intraclass correlation coefficient for unbalanced clustered studies with continuous outcomes. *Communications in Statistics-Simulation and Computation*, 1-10.
7. **Shan, G.**, Bayram, E., Caldwell, J. Z., Miller, J. B., Shen, J. J., & Gerstenberger, S. (2020). Partial correlation coefficient for a study with repeated measurements. *Statistics in Biopharmaceutical Research*, 1-7.
8. **Shan, G.** (2020). Two-stage optimal designs based on exact variance for a single-arm trial with survival endpoints. *Journal of Biopharmaceutical Statistics*, 1-9.
9. Zhang, H., **Shan, G.**, & Yang, B. Optimized elastic network models with direct characterization of inter-residue cooperativity for protein dynamics. *IEEE/ACM transactions on computational biology and bioinformatics*.

Published (in print)

10. **Shan, G.**, Dodge-Francis, C., & Wilding, G. E. (2020). Exact unconditional tests for dichotomous data when comparing multiple treatments with a single control. *Therapeutic innovation & regulatory science*, 54(2), 411-417.
11. **Shan, G.**, Zhang, H., & Jiang, T. (2020). Comments on "Exact inference for the random-effect model for meta-analyses with rare events". *Statistics in Medicine*, 39(22), 3022-3023.
12. **Shan, G.** (2020). Exact confidence limits for proportion difference in clinical trials with bilateral outcome. *Statistical Methods & Applications*, 29, 515-525.
13. Zhang, H., & **Shan, G.** (2020). Letter to the Editor: A novel confidence interval for a single proportion in the presence of clustered binary outcome data (SMMR, 2019). *Statistical Methods in Medical Research*, 29(2), 636-637.
14. Jiang, T., Cao, B., & **Shan, G.** (2020). Accurate confidence intervals for risk difference in meta-analysis with rare events. *BMC Medical Research Methodology*, 20:98.
15. **Shan, G.**, Zhang, H., & Jiang, T. (2020). Correlation coefficients for a study with repeated measures. *Computational and Mathematical Methods in Medicine*, 2020, Article ID 7398324.
16. **Shan, G.**, & Zhang, H. (2019). Two-stage optimal designs with survival endpoint when the follow-up time is restricted. *BMC Medical Research Methodology*, 19(1), 74.
17. **Shan, G.**, & Zhang, H. (2019). Rejoinder to "Efficient statistical inference for a parallel study with missing data by using an exact method" *Journal of Biopharmaceutical Statistics*, 29(6), 1174–1175.
18. **Shan, G.** (2019). Exact tests for disease prevalence studies with partially validated data. *Statistics in Biopharmaceutical Research*, 11(3), 266-273.
19. **Shan, G.**, Hutson, A., Wilding, G. E., Ma, C., & Tian, G.L. (2019). Efficient statistical inference for a parallel study with missing data by using an exact method. *Journal of Biopharmaceutical Statistics*, 29(3), 478–490.
20. Zhang, H., Song, Y., Jiang, B., Chen, B., & **Shan, G.** (2019). Two-stage bagging pruning for reducing the ensemble size and improving the classification performance. *Mathematical Problems in Engineering*, 2019, Article ID 8906034.
21. **Shan, G.**, Zhang, H., & Jiang, T. (2019). Adaptive two-stage optimal designs for Phase II clinical studies that allow early futility stopping. *Sequential Analysis*, 38(2), 199-213.
22. **Shan, G.** (2018). Sample size calculation for agreement between two raters with binary endpoints using exact tests. *Statistical Methods in Medical Research*, 27(7), 2132–2141.

23. **Shan, G.** (2018). Exact confidence limits for the response rate in two-stage designs with over- or under-enrollment in the second stage. *Statistical Methods in Medical Research*, 27(4), 1045–1055.
24. **Shan, G.**, Bernick, C., & Banks, S. (2018). Sample size determination for a matched-pairs study with incomplete data using exact approach. *British Journal of Mathematical and Statistical Psychology*, 71(1), 60-74.
25. **Shan, G.** (2018). Exact confidence limits for the probability of response in two-stage designs. *Statistics*, 52(5), 1086–1095.
26. **Shan, G.**, Kang, L., Xiao, M., Zhang, H., & Jiang, T. (2018). Accurate unconditional p-values for a two-arm study with binary endpoints. *Journal of Statistical Computation and Simulation*, 88(6), 1200–1210.
27. **Shan, G.**, & Hutson, A. (2018). Tests for Comparing Two Ordered Multinomials. *Wiley StatsRef: Statistics Reference Online*, 1–8.
28. **Shan, G.**, & Chen, J. J. (2018). Optimal inference for Simon’s two-stage design with over or under enrollment at the second stage. *Communications in Statistics-Simulation and Computation*, 47(4), 1157–1167.
29. **Shan, G.**, Banks, S., Miller, J. B., Ritter, A., Bernick, C., Lombardo, J., & Cummings, J. L. (2018). Statistical advances in clinical trials and clinical research. *Alzheimer’s & Dementia: Translational Research & Clinical Interventions*, 4, 366–371.
30. **Shan, G.**, Zhang, H., & Jiang, T. (2018). Determining sample size for a binary diagnostic test in the presence of verification bias. *Journal of Biopharmaceutical Statistics*, 28(6), 1193–1202.
31. **Shan, G.** (2017). A better confidence interval for the sensitivity at a fixed level of specificity for diagnostic tests with continuous endpoints. *Statistical Methods in Medical Research*, 26(1), 268–279.
32. **Shan, G.**, & Wang, W. (2017). Exact one-sided confidence limits for Cohen’s kappa as a measurement of agreement. *Statistical Methods in Medical Research*, 26(2), 615–632.
33. **Shan, G.** (2017). Comments on “Two-sample binary phase 2 trials with low type I error and low sample size.” *Statistics in Medicine*, 36(21), 3437–3438.
34. **Shan, G.**, & Gerstenberger, S. (2017). Fisher’s exact approach for post hoc analysis of a chi-squared test. *PLOS ONE*, 12(12), e0188709.
35. **Shan, G.**, & Zhang, H. (2017). Exact unconditional sample size determination for paired binary data (letter commenting: J Clin Epidemiol. 2015;68:733-739). *Journal of Clinical Epidemiology*, 84, 188–190.
36. **Shan, G.**, Wilding, G. E., & Hutson, A. D. (2017). Computationally Intensive Two-Stage Designs for Clinical Trials. *Wiley StatsRef: Statistics Reference Online*, 1-7.
37. Xiao, M., Jiang, T., Zhang, H., & **Shan, G.** (2017). Exact One-Sided Confidence Limit for the Ratio of Two Poisson Rates. *Statistics in Biopharmaceutical Research*, 9(2), 180–185.
38. Zhang, H., **Shan, G.**, & Young, D. (2017). Comparison of unweighted and weighted rank based tests for an ordered alternative in randomized complete block designs. *Communications in Statistics - Simulation and Computation*, 46(6), 4452–4464.
39. **Shan, G.**, Chen, J. J., & Ma, C. (2017). Boundary problem in Simon’s two-stage clinical trial designs. *Journal of Biopharmaceutical Statistics*, 27(1), 25–33.
40. Xu, J.†, **Shan, G.**, Amei, A., Zhao, J., Young, D., & Clark, S. (2017). A modified Friedman test for randomized complete block designs. *Communications in Statistics-Simulation and Computation*, 46(2), 1508-1519.
41. Zhang, H., Jiang, T., **Shan, G.**, Xu, S., & Song, Y. (2017). Gaussian network model can be enhanced by combining solvent accessibility in proteins. *Scientific Reports*, 7(1), 7486.

42. **Shan, G.**, Zhang, H., & Jiang, T. (2017). Efficient confidence limits for adaptive one-arm two-stage clinical trials with binary endpoints. *BMC Medical Research Methodology*, 17(1).
43. Liu, X., **Shan, G.**, Tian, L., & Ma, C. X. (2017). Exact methods for testing homogeneity of proportions for multiple groups of paired binary data. *Communications in Statistics-Simulation and Computation*, 46(8), 6074-6082.
44. **Shan, G.**, Wilding, G. E., Hutson, A. D., & Gerstenberger, S. (2016). Optimal adaptive two-stage designs for early phase II clinical trials. *Statistics in medicine*, 35(8), 1257-1266.
45. **Shan, G.**, & Ma, C. (2016). Unconditional tests for comparing two ordered multinomials. *Statistical Methods in Medical Research*, 25(1), 241-254.
46. **Shan, G.** (2016). Exact confidence intervals for randomized response strategies. *Journal of Applied Statistics*, 43(7), 1279-1290.
47. **Shan, G.**, Zhang, H., Jiang, T., Peterson, H., Young, D., & Ma, C. (2016). Exact p-values for Simon's two-stage designs in clinical trials. *Statistics in biosciences*, 8(2), 351-357.
48. Zhang, H., Jiang, T., & **Shan, G.** (2016). Identification of Hot Spots in Protein Structures Using Gaussian Network Model and Gaussian Naive Bayes. *BioMed Research International*, 2016, Article ID 4354901.
49. **Shan, G.**, Moonie, S., & Shen, J. J. (2016). Sample size calculation based on efficient unconditional tests for clinical trials with historical controls. *Journal of Biopharmaceutical Statistics*, 26(2), 240-249.
50. **Shan, G.**, Zhang, H., & Jiang, T. (2016). Minimax and admissible adaptive two-stage designs in phase II clinical trials. *BMC Medical Research Methodology*, 16, 90.
51. **Shan, G.** (2016). Exact sample size determination for the ratio of two incidence rates under the Poisson distribution. *Computational Statistics*, 31(4), 1633-1644.
52. Wang, W., & **Shan, G.** (2015). Exact confidence intervals for the relative risk and the odds ratio. *Biometrics*, 71(4), 985-995.
53. **Shan, G.** (2015). Improved confidence intervals for the Youden index. *PloS one*, 10(7), e0127272.
54. **Shan, G.** (2015). Exact unconditional testing procedures for comparing two independent Poisson rates. *Journal of Statistical Computation and Simulation*, 85(5), 947-955.
55. **Shan, G.**, Amei, A., & Young, D. (2015). Efficient noninferiority testing procedures for simultaneously assessing sensitivity and specificity of two diagnostic tests. *Computational and mathematical methods in medicine*, 2015, Article ID 128930.
56. Ma, C., **Shan, G.**, & Liu, S. (2015). Homogeneity test for correlated binary data. *PloS one*, 10(4), e0124337.
57. **Shan, G.**, & Wilding, G. (2015). Unconditional tests for association in 2×2 contingency tables in the total sum fixed design. *Statistica Neerlandica*, 69(1), 67-83.
58. Wilding, G. E., Consiglio, J. D., & **Shan, G.** (2014). Exact approaches for testing hypotheses based on the intra-class kappa coefficient. *Statistics in Medicine*, 33(17), 2998-3012.
59. **Shan, G.** (2014). Exact approaches for testing non-inferiority or superiority of two incidence rates. *Statistics & Probability Letters*, 85, 129-134.
60. **Shan, G.**, & Wilding, G. E. (2014). Powerful Exact Unconditional Tests for Agreement between Two Raters with Binary Endpoints. *PLoS ONE*, 9(5), e97386.
61. **Shan, G.**, & Ma, C. (2014). A Comment on Sample Size Calculation for Analysis of Covariance in Parallel Arm Studies. *J Biomet Biostat*, 5(184).
62. Consiglio, J. D., **Shan, G.**, & Wilding, G. E. (2014). A Comparison of Exact Tests for Trend with Binary Endpoints Using Bartholomews Statistic. *The International Journal of Biostatistics*, 10(2), 221-230.

63. **Shan, G.,** & Ma, C. (2014). Efficient tests for one sample correlated binary data with applications. *Statistical Methods & Applications*, 23(2), 175-188.
64. **Shan, G.** (2014). New Nonparametric Rank-Based Tests for Paired Data. *Open Journal of Statistics*, 4(7), 495-503.
65. **Shan, G.,** & Ma, C. (2014). Exact methods for testing the equality of proportions for binary clustered data from otolaryngologic studies. *Statistics in Biopharmaceutical Research*, 6(1), 115-122.
66. **Shan, G.,** Young, D., & Kang, L. (2014). A new powerful nonparametric rank test for ordered alternative problem. *PloS One*, 9(11), e112924.
67. **Shan, G.,** Ma, C., Hutson, A. D., & Wilding, G. E. (2013). Some tests for detecting trends based on the modified Baumgartner-Weiß-Schindler statistics. *Computational Statistics & Data Analysis*, 57(1), 246-261.
68. **Shan, G.** (2013). A Note on Exact Conditional and Unconditional Tests for Hardy-Weinberg Equilibrium. *Human Heredity*, 76(1), 10-17.
69. **Shan, G.,** & Wang, W. (2013). ExactCIDiff: An R Package for Computing Exact Confidence Intervals for the Difference of Two Proportions. *The R Journal*, 5(2), 62-71.
70. **Shan, G.,** Ma, C., Hutson, A. D., & Wilding, G. E. (2013). Randomized Two-Stage Phase II Clinical Trial Designs Based on Barnard's Exact Test. *Journal of Biopharmaceutical Statistics*, 23(5), 1081-1090.
71. **Shan, G.** (2013). More efficient unconditional tests for exchangeable binary data with equal cluster sizes. *Statistics & Probability Letters*, 83(2), 644-649.
72. **Shan, G.,** Ma, C., Hutson, A. D., & Wilding, G. E. (2012). An efficient and exact approach for detecting trends with binary endpoints. *Statistics in Medicine*, 31(2), 155-164.
73. **Shan, G.,** Hutson, A. D., & Wilding, G. E. (2012). Two-stage k-sample designs for the ordered alternative problem. *Pharmaceut. Statist.*, 11(4), 287-294.
74. Wilding, G. E., **Shan, G.,** & Hutson, A. D. (2012). Exact two-stage designs for phase II activity trials with rank-based endpoints. *Contemporary Clinical Trials*, 33(2), 332-341.
75. Vexler, A., **Shan, G.,** Kim, S., Tsai, W.-M., Tian, L., & Hutson, A. D. (2011). An empirical likelihood ratio based goodness-of-fit test for Inverse Gaussian distributions. *Journal of Statistical Planning and Inference*, 141(6), 2128-2140.
76. **Shan, G.,** Vexler, A., Wilding, G. E., & Hutson, A. D. (2010). Simple and exact empirical likelihood ratio tests for normality based on moment relations. *Communications in Statistics - Simulation and Computation*, 40(1), 129-146.

Published or Accepted Manuscripts: Applications (33 total)

1. Bernick, C., **Shan, G.,** Zetterberg, H., Banks, S., Mishra, V. R., Bekris, L., Leverenz, J., & Blennow, K. (2020). Longitudinal change in regional brain volumes with exposure to repetitive head impacts. *Neurology*, 94(3), e232-e240.
2. Bayram, E., Banks, S. J., **Shan, G.,** Kaplan, N., & Caldwell, J. Z. (2020). Sex Differences in Cognitive Changes in De Novo Parkinson's Disease. *Journal of the International Neuropsychological Society*, 26(2), 241-249.
3. Bayram, E., Kaplan, N., **Shan, G.,** & Caldwell, J. Z. (2020). The longitudinal associations between cognition, mood and striatal dopaminergic binding in Parkinson's disease. *Aging, Neuropsychology, and Cognition*, 27(4), 581-594.
4. Stephen, S. J., **Shan, G.,** Banks, S. J., Bernick, C., & Bennett, L. L. (2020). The relationship between fighting style, cognition, and regional brain volume in professional combatants: a preliminary

- examination using brief neurocognitive measures. *The Journal of Head Trauma Rehabilitation*, 35(3), E280-E287.
5. Bennett, L. L., Stephen, S. J., Bernick, C., **Shan, G.**, & Banks, S. J. (2020). Sex moderates the relationship that number of professional fights has with cognition and brain volumes. *Frontiers Neurology*. *Accepted*.
 6. Luu, Q., Vitale, K., **Shan, G.**, Keel-Jayakumar, R., & Viswesh, V (2020). Evaluation of guideline recommendations for dual antipseudomonal therapy in hospitalized adults with pneumonia using combination antibiotics. *Pharmacotherapy*. *Accepted*.
 7. Gonzalez, E., Glick, J., **Shan, G.**, & Talbot, J. (2020). Economic and workload impact of therapeutic interchange of inhaler medications and nebulizer solutions. *American Journal of Health-System Pharmacy*. *Accepted*.
 8. **Shan G.**, Johnson S.L., Fertitta J., Kim J., Williams P., Wu Q., Ge K., Daruwalla J., Benning S.D., & Young D. (2020). Missed Physical Therapy Treatments in the Acute Hospital: Towards a More Complete Understanding. *Journal of Acute Care Physical Therapy*. 2020 In Press
 9. Bernick, C., Hansen, T., Ng, W., Williams, V., Goodman, M., Nalepa, B., **Shan, G.** & Seifert, T. (2020). Concussion occurrence and recognition in professional boxing and MMA matches: toward a concussion protocol in combat sports. *The Physician and Sportsmedicine*. *Accepted*
 10. Bryant, B. R., Narapareddy, B. R., Bray, M. J. C., Richey, L. N., Krieg, A., **Shan, G.**, Peters, M. E. & Bernick, C. B. (2020). The effect of age of first exposure to competitive fighting on cognitive and other neuropsychiatric symptoms and brain volume. *International Review of Psychiatry (Abingdon, England)*, 32(1), 89–95.
 11. Banks, S. J., Bayram, E., **Shan, G.**, LaBelle, D. R., & Bluett, B. (2019). Non-motor predictors of freezing of gait in Parkinson's disease. *Gait & Posture*, 68, 311–316.
 12. Bayram, E., **Shan, G.**, & Cummings, J. L. (2019). Associations between Comorbid TDP-43, Lewy Body Pathology, and Neuropsychiatric Symptoms in Alzheimer's Disease. *Journal of Alzheimer's Disease : JAD*, 69(4), 953–961.
 13. Shen, J. J., **Shan, G.**, Kim, P. C., Yoo, J. W., Dodge-Francis, C., & Lee, Y. J. (2019). Trends and related factors of cannabis-associated emergency department visits in the United States: 2006–2014. *Journal of Addiction Medicine*, 13(3), 193-200.
 14. Jalene, S., Pharr, J., & Poston, B. (2019). Estimated Cardiorespiratory Fitness Is Associated With Reported Depression in College Students. *Frontiers in Physiology*, 10, 1191.
 15. Lee, B., Bennett, L. L., Bernick, C., **Shan, G.**, & Banks, S. J. (2019). The relations among depression, cognition, and brain volume in professional boxers: a preliminary examination using brief clinical measures. *The Journal of Head Trauma Rehabilitation*, 34(6), E29-E39.
 16. Gore, J., Moonie, S., Anderson, J., & **Shan, G.** (2019). Differences in Perceived Importance of Preventive Services and Healthcare Provider Trust Among Hispanics. *Nevada Journal of Public Health*, 2019.
 17. Kim, P., Yamashita, T., Shen, J. J., Park, S. M., Chun, S. Y., Kim, S. J., ... & Lee, Y. J. (2019). Dissociation between the growing opioid demands and drug policy directions among the US older adults with degenerative joint diseases. *Medicine*, 98(28), e16169.
 18. Cummings, J., Fox, N., Vellas, B., Aisen, P., & **Shan, G.** (2018). Biomarker and Clinical Trial Design Support for Disease-Modifying Therapies: Report of a Survey of the EU/US: Alzheimer's Disease Task Force. *The Journal of Prevention of Alzheimer's Disease*, 5(2), 103–109.
 19. Bernick, C., Zetterberg, H., **Shan, G.**, Banks, S., & Blennow, K. (2018). Longitudinal Performance of Plasma Neurofilament Light and Tau in Professional Fighters: The Professional Fighters Brain Health Study. *Journal of Neurotrauma*, 35(20), 2351–2356.

20. Caldwell, J. Z., Berg, J. L., **Shan, G.**, Cummings, J. L., Banks, S. J., & Alzheimer's Disease Neuroimaging Initiative. (2018). Sex moderates the impact of diagnosis and amyloid PET positivity on hippocampal subfield volume. *Journal of Alzheimer's Disease*, 64(1), 79-89.
21. Miller, J. B., **Shan, G.**, Lombardo, J., & Jimenez-Maggoria, G. (2018). Biomedical informatics applications for precision management of neurodegenerative diseases. *Alzheimer's & Dementia: Translational Research & Clinical Interventions*, 4, 357-365.
22. Mazurenko, O., Shen, J. J., **Shan, G.**, & Greenway, J. (2018). Nevada's Medicaid expansion and admissions for ambulatory care-sensitive conditions. *The American Journal of Managed Care*, 24(5), e157-e163.
23. Ghazi-Saidi, L., Walsh, R. R., **Shan, G.**, & Banks, S. J. (2018). Biomarkers of cognitive impairment: brain cortical thickness, volumetrics and cerebrospinal fluid. *Alzheimer disease and associated disorders*, 32(3), 255-257.
24. Whittaker, A., Smith, K. P., & **Shan, G.** (2017). Pharmacy residency school-wide match rates and modifiable predictors in ACPE-accredited colleges and schools of pharmacy. *American journal of pharmaceutical education*, 81(10), 6109.
25. Shen, J. J., Cochran, C. R., Mazurenko, O., Moseley, C., **Shan, G.**, & Nieshi, S. (2016). Racial and Insurance Status Disparities in Patient Safety Indicators among Hospitalized Patients. *Ethnicity & Disease*, 26(3), 443-452.
26. Izuora, K. E., Ezeanolue, E., Neubander, M. F., Gewelber, C. L., Allenback, G. L., **Shan, G.**, & Umpierrez, G. E. (2016). Changes in Inflammatory and Bone Turnover Markers After Periodontal Disease Treatment in Patients with Diabetes. *The American Journal of the Medical Sciences*, 351, 589-594.
27. Shen, J., Epane, J., Weech-Maldonado, R., **Shan, G.**, & Liu, L. (2015). EHR adoption and cost of care—evidence from patient safety indicators. *Journal of Health Care Finance*, 41(4).
28. Williams, B. T., Horvath, P. J., Burton, H., Leddy, J., Wilding, G., Rosney, D., & **Shan, G.** (2015). The effect of pre exercise carbohydrate consumption on cognitive function. *Journal of Athletic Enhancement*, 4(1).
29. Mazurenko, O., Gupte, G., & **Shan, G.** (2015). Analyzing US nurse turnover: Are nurses leaving their jobs or the profession itself. *Journal of Hospital Administration*, 4(4), 48-56.
30. Young, D. L., Jensen, C., Goodrich, D., & **Shan, G.** (2015). Physical therapy nontreatment events in the acute hospital setting: a descriptive study. *Journal of Acute Care Physical Therapy*, 6(1), 16-23.
31. Moonie, S., Seggev, J. S., **Shan, G.**, Pergola, B., & Teramoto, M. (2015). Longitudinal trends in asthma health care use in Southern Nevada. *Annals of Allergy, Asthma & Immunology*, 114(1), 70-72.
32. Mazurenko, O., Gupte, G., & **Shan, G.** (2014). A comparison of the education and work experiences of immigrant and the United States of America-trained nurses. *Int Nurs Rev*, 61(4), 472-478.
33. Clark, S., Bungum, T. J., **Shan, G.**, Meacham, M., & Coker, L. (2014). The effect of a trail use intervention on urban trail use in Southern Nevada. *Preventive Medicine*, 67, S17-S20.

Grant Activity

Ongoing Grants

- | | |
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| 1. (Shan, PI)
NIH, NIA R01AG070849
Title: Alzheimer's Disease: New Trial Designs for Emerging Challenges
Role: PI | 01/01/2021-12/31/2025 35%
\$1,532,000 |
| 2. (Shan, PI)
NIH, NCI R03CA248006 | 02/01/2021-01/31/2023 10%
\$149,500 |

Title: New Adaptive Designs for Clinical Studies by Using Computationally Intensive Techniques
Role: PI

3. (Sabbagh, PI) 08/01/2020-07/31/2023 6%
NIH, P20, P20AG068053
Title: Nevada Exploratory Alzheimer's Disease Research Center (ADRC)
Role: Biostatistician
4. (Cummings, PI) 04/15/2021-03/31/2026 15%
NIH, R35AG071476
Title Alzheimer's Clinical Trial InnOvatioN (ACTION) Initiative
Role: Biostatistician

Completed Grants and Contracts

1. (Cummings, PI) 9/01/2015-6/30/2021 30%
NIH COBRE, P20GM109025 \$11,100,000
Title: The COBRE Center for Neurodegeneration and Translational Neuroscience (CNTN) for Cleveland Clinic and UNLV
Role: Biostatistician
2. (Kinney, PI) 9/15/2020-5/31/2022 2%
NIH, R01, R01AG062762
Title: Aging And Hyperglycemia Alter Molecular Mechanisms And Hippocampal Oscillations Consistent With Alzheimer's Disease
Role: Biostatistician
3. (Poston, PI) 8/01/2017-7/31/2021 2%
NIH, R15, R15NS098342
Title: Long-term Transcranial Direct Current Stimulation in Parkinson's Disease
Role: Biostatistician
4. (Baker, PI) 4/01/2018 – 3/31/2021 20%
NIH/NIGMS P20GM103440
Title: The INBRE for Nevada
Role: Biostatistician
5. (Shan, PI) 4/01/2016-3/31/2018 30%
NIH, Nevada INBRE Developmental Research Project \$210,000
Title: New Adaptive Designs for Clinical Studies by Using Computationally Intensive Techniques
Role: PI
6. (Shan, PI) 5/29/2016-8/06/2016 1%
NIH, Nevada INBRE 2016 Undergraduate Research Opportunity Program (UROP) \$4,916
Title: Efficient Designs to Improve the Success Rate of Clinical Trials
Role: PI
7. (Parvesh, PI) 7/1/2013-6/30/2018 20%
NIH/NIGMS 1U54 GM 104944-01A1 \$20,000,000
Title: Clinical and Translational Research Infrastructure Network IDeA-CTR.
Role: Biostatistician
8. (Pinheiro, PI) 4/01/2016-3/31/2018 3%

- NIH, Nevada INBRE Developmental Research Project \$212,000
 Title: Colorectal Cancer Survival Disparities in Nevada
 Role: Biostatistician
9. (Shan, PI) 12/10/2014-6/30/2015 5%
 CTR-IN mini pilot grant \$11,000
 Title: Adaptive two stage designs for early phase cancer clinical trials.
 Role: Principal Investigator
10. (Shan, PI) 04/01/2014-6/30/2015 5%
 CTR-IN visiting scholar \$11,000
 Title: Optimal adaptive designs for Phase II clinical trials.
 Role: Principal Investigator
11. (Shan, PI) 7/1/2013-12/30/2014
 UNLV Faculty Opportunity Award \$20,000
 Title: Efficient One-stage and Two-stage Phase II Clinical Trial Designs Based on Exact Unconditional Tests.
 Role: Principal Investigator
12. (Shan, PI) 02/01/2015-02/01/2016 5%
 Roseman University \$3,750
 Title: Shan-Roseman University Biostatistician Agreement
 Role: Principal Investigator
13. (Lounsbery, PI) 7/01/2014-6/30/2017
 Sponsor: UNLV, DGRA, Graduate Assistant Scholar.
 Role: Biostatistician
14. (Gerstenberger, PI) 8/01/2013-7/31/2016 5%
 U.S. Department of Housing and Urban Development (HUD) \$2,293,701 (subaward to UNLV \$540,578)
 Title: Henderson Lead Hazard Control and Healthy Homes Program- Lead Based Paint Hazard Control Grant
 Role: CO-I as Biostatistician
15. (Young, PI) 3/01/2016-2/28/2017 1%
 Acute Care Section of the American Physical Therapy Association
 Title: Patient Non-Treatment by Physical Therapy in the Acute Hospital
 Role: Biostatistician
16. (Mohamed, PI) 6/01/2016-5/31/2017 1%
 Sponsor: NIH, Nevada INBRE Pilot Grant Project
 Title: A Plantar Tissue Stiffness Model to Predict the Onset of Diabetic Ulcers
 Role: Biostatistician
17. (Ghajar, PI) 12/1/2011-7/31/2012
 Department of Defense (DOD) \$20,500,000
 Title: EYE-TRAC Advance
 Role: Biostatistician

Published conference abstracts and conference proceedings

1. Bernick, C., Zetterberg, H., Banks, S. J., Leverenz, J. B., Bekris, L. M., **Shan, G.**, & Blennow, K. (2019). P4-284: Differential Regional Mri Volume Change As A Marker Of Neurodegenerative Disease In Those Exposed To Repetitive Head Trauma. *Alzheimer's & Dementia*, 15, P1394-p1395.
2. Bernick, C., **Shan, G.**, & Professional Fighters Brain Health Study. (2018). Ic-p-199: PET FDDNP Imaging In Repetitive Head Trauma: It Is all In the Approach. *Alzheimer's & Dementia*, 14(7s_part_3), P164-p164.
3. Bernick, C., **Shan, G.**, Mishra, V., & Banks, S. (2017). Longitudinal MRI and cognitive change in Professional Fighters. *Neurology* Apr 2017, 88 (16 Supplement) P6.166.
4. Vogel, S., **Shan, G.**, Bird, C., Bonner-jackson, A., Miller, J. B., & Banks, S. J. (2017). [p2-283]: The Relationship Among Memory Performance And Hippocampal Subregion Volumes In A Memory Clinic Population. *Alzheimer's & Dementia*, 13(7s_part_15), P723-p723.
5. Bernick, C., **Shan, G.**, Mishra, V., & Banks, S. (2017). Longitudinal MRI and cognitive change in Professional Fighters (P6. 166). *Neurology*, 88(16 Supplement), P6-166.
6. Izuora, K., Ezeanolue, E., **Shan, G.**, Neubauer, M., Gewelber, C., & Umpierrez, G. (2015). Effect of Periodontal Disease Treatment on Inflammation and Bone Turnover Markers in Patients with Diabetes. *Journal of Clinical Densitometry*, 3(18), 440.
7. Izuora, K. E., Ezeanolue, E., Neubauer, M., Gewelber, C., Allenback, G., **Shan, G.**, & Umpierrez, G. E. (2015, June). Prevalence and Factors Associated with Dental Loss among Ambulatory Patients with Diabetes. In *DIABETES* (Vol. 64, pp. A416-A416).
8. Izuora, K. E., Ezeanolue, E., Neubauer, M., Gewelber, C., Allenback, G., **Shan, G.**, & Umpierrez, G. E. (2015, June). Changes in Inflammation and Bone Turnover Markers after Treatment for Periodontal Disease in Patients with Diabetes. In *DIABETES* (Vol. 64, pp. A129-A130).
9. Li, X., Diao, X., **Shan, G.**, & Kuang, Y. (2014). Development of Magnetic Field Configurations in a 6 MV Linac-MRI. *International Journal of Radiation Oncology• Biology• Physics*, 90(1), S96-S97.
10. **Shan, G.**, & Liu, D. (2013). Exact Testing Procedures in SAS R for Categorical Data Analysis. Western Users of SAS Software 2013 Conference Proceedings, Las Vegas, NV.
11. Tornatore, K., Minderman, H., Mcquire, O., O'louglin, K., **Shan, G.**, Wilding, G., & Venuto, R. (2012). Nuclear Localization Of Nuclear Factor Of Activated T-cells As A Pharmacodynamic Marker Of Tacrolimus Immunosuppression In Renal Transplant Recipients.: Abstract 874: P39-ii. *American Journal Of Transplantation*, 12, 285.
12. Rosney, D. M., Williams, B., Burton, H., Leddy, J., Willer, B., Wilding, G., **Shan, G.**, & Horvath, P. (2010). Cognitive Function After Endurance Exercise: A Comparison Between Gatorade® And A Placebo. *The Journal of the Federation of American Societies for Experimental Biology*, 24, 742.3.

Presentations

1. **Shan, G.**, & Gerstenberger, S. (2018). Joint Statistical Meeting (JSM), Vancouver, Canada, Aug. 2018. Fisher's Exact Approach for Post Hoc Analysis of a Chi-Squared Test.
2. **Shan, G.** (2018). *International Conference on Information Theory and Data Science*, Tianjin, China. June-July 2018. Exact Approach for Post Hoc Analysis of a Chi-Squared Test.

3. **Shan, G.** (2015) Eastern North American Region (ENAR), Miami, FL, March 2015. A Better Confidence Interval for the Sensitivity at a Fixed Level of Specificity for Diagnostic Tests with Continuous Endpoints.
4. **Shan, G.** (2015). *Western North American Region (WNAR)*, Boise, ID, June 2015. Efficient sample size determination for clinical trials with historical controls.
5. **Shan, G.,** & Moonie, S. (2014) Eastern North American Region (ENAR), Baltimore, MD, March 2014. Sample Size Calculation Based on Efficient Unconditional Tests for Clinical Trials with Historical Controls.
6. **Shan, G.** (2013) Eastern North American Region (ENAR), Orlando, FL, March 2013. An Efficient and Exact Approach for Detecting Trends with Binary Endpoints.
7. **Shan, G.** (2013). *Western Users of SAS Software (WUSS)*, Las Vegas, NV, November 2013. Exact testing procedures in SAS for categorical data analysis.
8. Mazurenko, O., Gupte, G., & **Shan, G.** (2013). Predictors of Nursing Turnover: Organizational versus Professional Level. *ACAD MANAGE PROC* January 2013.
9. **Shan, G.,** Wilding, G., Ma, C., Schonberger, A., & Ghajar, J. (2012). Eastern North American Region (ENAR), Washington, DC, April 2012. Unconditional Tests to Measure Agreement for Categorical Data in Applications to a Brain Trauma Study.
10. Ma, C. & **Shan, G.** (2012). Joint Statistical Meeting (JSM), San Diego, Aug. 2012. Homogeneity Test for Correlated Data in Ophthalmologic Studies.
11. Pollow Jr, D., Williams, B., Joyce, D., **Shan, G.,** Temple, J., Gosselin, L., & Horvath, P. (2012). *ACSM Annual Meeting*, San Francisco, CA. Caffeine does not affect improvements in cognition during prolonged high-intensity exercise in alert well-trained individuals.
12. **Shan, G.** (2011) Eastern North American Region (ENAR), Miami, FL, March 2011. Two-stage K-sample designs for the ordered alternative problem.
13. Tornatore, K., Minderman, H., McQuire, O., O'Louglin, K., **Shan, G.,** Wilding, G., & Venuto, R. (2011). *112th American Society of Clinical Pharmacology & Therapeutics, American Society of Clinical Pharmacology & Therapeutics*, Dallas, TX 2011. Pharmacodynamic Assessment of NFAT Nuclear Localization During tacrolimus Immunosuppression in Renal Transplant Recipients.
14. Tornatore, K., Minderman, H., McQuire, O., O'Louglin, K., **Shan, G.,** Wilding, G., & Venuto, R. (2011). *AST Annual Scientific Exchange*, San Antonio, TX, Dec 2011. Nuclear Localization of Nuclear Factor of Activated T-cells as a Pharmacodynamic Marker of Tacrolimus Immunosuppression in Renal Transplant Recipients.
15. **Shan, G.,** Wilding, G., & Hutson, A. (2010). Joint Statistical Meeting (JSM), Vancouver, Canada, Aug. 2010. Exact two-stage designs for phase II clinical trials with rank-based endpoints.

Poster

1. Ritter, A., Kaylegian, J., Calvin, K., Ivey, B., Cummings, J. L., **Shan, G.,** & Caldwell, J. Z. (2020, July). Discrepancies in the Detection of Early Impairment in Elderly Individuals: Implications for the Clinic and Research. In *2020 Alzheimer's Association International Conference*. ALZ.

2. Caldwell, J. Z., Yang, Z., Kaplan, N., Leavitt, M., Miller, J., Mishra, V. R., ... & Cordes, D. (2020, July). Brain imaging data quality and denoising: impact on the study of sex differences in Alzheimer's disease. In *2020 Alzheimer's Association International Conference*. ALZ.
3. Mishra, V. R., Caldwell, J. Z., Cordes, D., **Shan, G.**, & Ritter, A. (2020, July). Diffusion MRI-Derived Free Water Fraction May be a Sensitive Imaging Biomarker that could Improve Identification of Mild Cognitive Impairment Participants progressing to Alzheimer's disease-dementia. In *2020 Alzheimer's Association International Conference*. ALZ.
4. **Shan, G.** (2016). Adaptive designs for phase II cancer clinical trials. *National IDeA Symposium of Biomedical Research Excellence (NISBRE)*, NIH, June 2016.
5. Banks, S., Miller, J., **Shan, G.**, & Bernick, C. (2016). Admitted Anabolic-Androgenic Steroid Use in Professional Fighters: Relationship with Hippocampal Volume and Cognition. INS44th Annual Meeting, Boston, MA.
6. Banks, S., Alberts, J., **Shan, G.**, & Bernick, C. (2016). Cognitive and Balance Correlates of Exposure and Brain Health in Professional Fighters. American Academy of Neurology, Vancouver, BC, Canada.
7. Bungum, T., Pharr, J., **Shan, G.**, Manlove, H., & Abelar, J. (2016, October). Effects of an intervention on behavior and attitudes related to distracted driving among college undergraduates. In APHA 2016 Annual Meeting & Expo (Oct. 29-Nov. 2, 2016). American Public Health Association.
8. Izuora, K., Ezeanolue, E., **Shan, G.**, Neubauer, M., Gewelber, C., & Umpierrez, G. (2015). Effect of Periodontal Disease Treatment on Inflammation and Bone Turnover Markers in Patients with Diabetes. International Society for Clinical Densitometry (ISCD), Annual meeting, Chicago.
9. Young, D., **Shan, G.** et al. (2014). The Combined Sections Meeting of the American Physical Therapy Association, Las Vegas, NV Feb 2014. A Model to Help Understand Physical Therapy Non-treatment in the Acute Care Setting.
10. **Shan, G.** (2010) 22nd Annual J. Warren Perry Lecture, SUNY at buffalo, buffalo, NY, Oct. 2010. Exact two-stage designs for phase II clinical trials with rank-based endpoints.