

WEN-WEI LIU

Tucson Area, AZ

wliu@arizona.edu

EDUCATION

UNIVERSITY OF ARIZONA, Graduate Interdisciplinary Program in Statistics, Tucson, AZ

Doctor of Philosophy, expected May 2024

Coursework: Advanced Statistical Regression Analysis, Design and Analysis of Experiments, Analysis of Categorical Data, Statistical Machine Learning, Analysis of High Dimensional Data, Neural Networks, Survey of Optimization Methods, Healthcare Data Science, Statistical Methods in Bioinformatics, Biosystems Analytics

DUKE UNIVERSITY, School of Medicine, Department of Biostatistics and Bioinformatics, Durham, NC

Master of Biostatistics, May 2015

Master's Project: Meta-analysis for Safety Monitoring of Drug Interchangeability

- Proposed the new decision rule for the generic drug assessment which considers the safety and efficacy issues impacted by the interchangeability based on the two-sequence, two-period crossover design and the meta-analysis from the previous studies.
- Utilize R to perform the simulation study to verify the adequacy of the new decision rule.

Coursework: Generalized Linear Models, Analysis of Correlated and Longitudinal Data, Bayesian and Modern Statistics, Survival Analysis, Clinical Trial Design and Analysis, Statistical Theory and Methods, Statistical Methods for Learning and Discovery

NATIONAL TAIWAN UNIVERSITY, Taipei, Taiwan

Bachelor of Science in Plant Pathology and Microbiology, June 2012. Certification of Completion in Biological Statistics Program

PROFESSIONAL EXPERIENCE

ROCHE Group, Roche Tissue Diagnostics/Ventana Medical Systems Inc., Tucson, AZ

Senior Biostatistician, 2022 – present

Biostatistician II, 2017 – 2022

Biostatistician I, 2015 - 2017

- Interacts with development and clinical investigators to design clinical trials with appropriate statistical methods and adequate sample size for statistical justification of clinical utility claims.
- Writes statistical analysis plans as needed to capture design elements and statistical methodology.
- Performs data analysis and prepares statistical reports of results.
- Performs Quality Control (QC) for statistical analyses by other biostatisticians to ensure analysis quality.
- Conducts randomization and blinding of samples.
- Develops data entry spreadsheets as needed.
- Maintains expertise in state-of-the-art data manipulation and statistical analyses.
- Manages technical aspects of project(s), as assigned.
- Monitors work to ensure quality, and continuously promote Quality First Time.

GREEN KEY TEMP LLC

Provide statistical support to Boehringer Ingelheim Pharmaceuticals Inc., Danbury, CT

Statistical Programmer, 2015 - 2015

- Create analysis dataset from raw dataset.
- Generate efficacy and safety TFLs from ADS or SDTM for medical writing and publication.
- Review and modify standard programs appropriately when needed.
- Validate standard programs and macros written by other programmers.

DUKE UNIVERSITY, Duke Translational Medicine Institute, Biostatistics Core, Durham, NC

Biostatistician Intern, 2014 - 2015

Selected Internship Project Work

Sex Differences in Transcriptomic and Proteomic Expression to Intracerebral Hemorrhage in Mice:

- Conducted genome-wide association study to explore sex-specific differences in improved functional outcome after experimental intracerebral hemorrhage (ICH) by post-ICH gene expression. Research manuscript is under writing.
- Applied R to quantile-normalize the 54 samples and sought the unique probes from each comparison group by linear model fit.
- Determined that sex does not affect hemorrhage evolution, but female sex is associated with improved neurobehavioral recovery after ICH by using SAS to integrate unique probes with data from Ingenuity Pathway Analysis.

Doctor Who? A Quality Improvement Project to Assess and Improve Patients' Knowledge of Their Inpatient Physicians:

- Analyzed the association of (1)business card/writing physician's name on white board and (2)knowing patients' inpatient physicians in 378 patients by chi-square tests, t tests, and logistic regression models. Research manuscript is under review.

The Relationship of Postoperative Beta-Blocker and Statin Use with Mortality after Noncardiac Surgery:

- Evaluated for the clinical risk factors by utilizing the determinants of the Cleveland Clinic Risk Stratification Index, and pre-and postoperative cardiovascular prescription drug use to mortality after noncardiac surgery.

- Concluded that postoperative beta-blocker and statin use were not associated with a decreased risk of perioperative mortality in patients who are undergoing noncardiac surgery by using SAS to clean the 16,136 patients' data and structure inverse probability-weighted logistic regression models with propensity score adjustments.

TAIPEI MEDICAL UNIVERSITY, Graduate Institute of Nursing, Taipei, Taiwan

Research Assistant, 2012 –2013

- Assessed the self-health promoting behavior of nurses by conducting questionnaire from 190 nurses. Comparison between health promotion assessment score and health promotion satisfaction score, as well as linear regression were presented by SPSS.
- Identified the association of different mental illness by using SAS to analyze the data with 1,000,000 subjects from National Health Insurance Research Database and deriving the conclusions of other psychiatry topics.

NATIONAL TAIWAN UNIVERSITY, Graduate Institute of Epidemiology and Preventive Medicine, Taipei, Taiwan

Intern, Spring and Summer 2011

ACADEMIA SINICA, Institute of Molecular Biology, Taipei, Taiwan

Intern, Summer 2010

CERTIFICATION & SOFTWARE SKILLS

- **SAS Certified Advanced Programmer for SAS 9 (SAS Institute, Certificate No. AP013319v9)**
- **SAS:** Programmed SAS scripts for statistical analyses including repeated measure analysis, Cox proportional hazard model, ANOVA and data management by cleaning data into a more analyzable form.
- **R statistics:** Programmed R scripts for simulation study and statistical analyses including scatterplot matrix, regressions analysis, and longitudinal analysis.
- **Python, SPSS, SYSTAT**

PUBLICATIONS

- Luo D, **Liu W**, Chen T, An L*. A Distribution-Free Model for Longitudinal Metagenomic Count Data. *Genes*. 2022;13(7):1183.
- Jary M, **Liu WW**, Yan D, Bai I, Muranyi A, Colle E, Brocheriou I, Turpin A, Radosevic-Robin N, Bourgoin P, Penault-Llorca F, Cohen R, Vernerey D, André T, Borg C, Shanmugam K*, Svrcek M*. The immune microenvironment in patients with mismatch-repair-proficient oligometastatic colorectal cancer exposed to chemotherapy: the randomized MIROX GERCOR cohort study. *Mol Oncol*. 2022 Jun;16(11):2260-2273.
- Williams CJM, Seligmann JF, Elliott F, Shires M, Richman SD, Brown S, Zhang L, Singh S, Pugh J, Xu XM, Muranyi A, Guetter C, Lorsakul A, Kurkure U, Zhao Z, Martin J, Wang X, Nguyen K, **Liu WW**, Yan D, West NP, Barrett JH, Barnes M, Bai I, Seymour MT, Quirke P, Shanmugam K*. Artificial Intelligence-Assisted Amphiregulin and Epiregulin IHC Predicts Panitumumab Benefit in RAS Wild-Type Metastatic Colorectal Cancer. *Clin Cancer Res*. 2021 Jun 15;27(12):3422-3431.
- Huang RSP*, Smith D, Le CH, **Liu WW**, Ordinario E, Manohar C, Lee M, Rajamani J, Truong H, Li J, Choi C, Li J, Pati A, Bubendorf L, Buettner R, Kerr KM, Lopez-Rios F, Marchetti A, Marondel I, Nicholson AG, Öz AB, Pauwels P, Penault-Llorca F, Rossi G, Thunnissen E, Newell AH, Pate G, Menzl I. Correlation of ROS1 Immunohistochemistry With ROS1 Fusion Status Determined by Fluorescence In Situ Hybridization. *Arch Pathol Lab Med*. 2020 Jun;144(6):735-741.
- Xie Y, Li YJ, Lei B, Kernagis D, **Liu WW**, Bennett ER, Venkatraman T, Lascola CD, Laskowitz DT, Warner DS, James ML*. Sex Differences in Gene and Protein Expression After Intracerebral Hemorrhage in Mice. *Transl Stroke Res*. 2019 Apr;10(2):231-239.
- Yoon HH*, Shi Q, Heying EN, Muranyi A, Bredno J, Ough F, Djalilvand A, Clements J, Bowermaster R, **Liu WW**, Barnes M, Alberts SR, Shanmugam K, Sinicrope FA*. Intertumoral Heterogeneity of CD3+ and CD8+ T-Cell Densities in the Microenvironment of DNA Mismatch-Repair-Deficient Colon Cancers: Implications for Prognosis. *Clin Cancer Res*. 2019 Jan 1;25(1):125-133.
- **Liu WW**, Chow SC. Drug Interchangeability: Meta-Analysis for Safety Monitoring. In: Chow SC, editor. *Encyclopedia of Biopharmaceutical Statistics*, Third Edition. CRC Press; 2017.
- Welsby IJ*, Krakow EF, Heit JA, Williams EC, Arepally GM, Bar-Yosef S, Kong DF, Martinelli S, Dhakal I, **Liu WW**, Krischer J, Ortel TL. The association of anti-platelet factor 4/heparin antibodies with early and delayed thromboembolism after cardiac surgery. *J Thromb Haemost*. 2017 Jan;15(1):57-65.
- Oprea AD, Lombard FW, **Liu WW**, White WD, Karhausen JA, Li YJ, Miller TE, Aronson S, Gan TJ, Fontes ML, Kertai MD*. Baseline Pulse Pressure, Acute Kidney Injury, and Mortality After Noncardiac Surgery. *Anesth Analg*. 2016 Dec;123(6):1480-1489.
- Broderick-Forsgren K, Hunter WG, Schulteis RD, **Liu WW**, Boggan JC, Sharma P, Thomas S, Zaas A, Bae J*. Doctor Who? A Quality Improvement Project to Assess and Improve Patients' Knowledge of Their Inpatient Physicians. *J Grad Med Educ*. 2016 May;8(2):197-201
- **Liu WW***, Chow SC. Meta-Analysis for Safety Monitoring of Drug Interchangeability. *J Bioequiv Availab*. 2015 Aug 8;7:239-243.
- Bartz RR*, Ferreira RG, Schroder JN, Davies J, **Liu WW**, Camara A, Welsby IJ. Prolonged pulmonary support after cardiac surgery: incidence, risk factors and outcomes: a retrospective cohort study. *J Crit Care*. 2015 Oct;30(5):940-4