

# Ransmond O. Berchie, MS, GStat

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## CONTACT INFORMATION

University of Utah School of Medicine, Department of Population Health Sciences  
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## RESEARCH INTERESTS

- Causal Inference, Survival Analysis, Longitudinal data analysis, and Pharmacoepidemiology.
- Comparative Effectiveness Research, Surrogate Endpoints, Target Trial Emulation, Informative missing data, Large-scale Observational Data, Clinical Trial Data.
- Hypertension, Cardiology, Nephrology, Cognitive Outcomes.

## EDUCATION

**University of Utah School of Medicine**, Salt Lake City, UT

May 2025 (*Expected*)

Ph.D. Biostatistics (Population Health Sciences)

Dissertation

- **Effect Modification by Acute Change in a Biomarker: Impact of Acute GFR Change on the Effect of SGLT-2 inhibitors on Long-Term Endpoints in Kidney Trials:** Utilized principal stratification with a normal copula model, governed by the correlation between potential biomarker changes under treatment and placebo, to estimate conditional average treatment effects. The method aims to explore the impact of acute biomarker changes on treatment effect on long-term clinical endpoints in randomized clinical trials, addressing the challenge of analyzing treatment-biomarker interactions in the presence of post-randomization factors and situations where the conventional monotonicity assumption may oversimplify the complex biological realities faced in clinical settings. I illustrate the method by determining how knowledge of acute change in glomerular filtration rate modifies the expected effect of SGLT2 inhibitors on clinical endpoints in patients with chronic kidney disease.
- **Estimating Per-Protocol Effects in Emulated Target Trials with Competing Risks: ARBs vs. ACEIs on Cognitive Outcomes in SPRINT:** Developed a method for estimating per-protocol effects in time-to-event studies with competing risks by using the discrete-time counterfactual subdistribution (cumulative incidence) functions. I employed inverse probability weighting to address time-varying confounding, competing risks, adherence, and loss to follow-up. I apply this method to an emulated target trial investigating the effects of angiotensin-II receptor blockers (ARBs) versus angiotensin-converting enzyme inhibitors (ACEIs) on cognitive outcomes. Using data from the Systolic Blood Pressure Intervention Trial (SPRINT), the analysis incorporated IP-weighted risk ratios to assess the per-protocol effects, providing a rigorous evaluation of the comparative effectiveness of ARBs and ACEIs on the risk of mild cognitive impairment (MCI), probable dementia (PD), and all-cause mortality.
- **Estimating the Effect of Hospital-Acquired Infections on Excess Length of Hospital Stay in the Presence of Hospital Mortality:** Developing a method for estimating the distribution of length of hospital stay by contrasting the observed distribution in the data with the distribution resulting from a counterfactual world where co-infections could be prevented. This method addresses the time-varying nature of hospital-acquired infection status and the competing event of hospital mortality.

M.S. Statistics (**With Distinction; Final CGPA: 4.00 / 4.00**)**Kwame Nkrumah University of Science and Technology** , Kumasi, Ghana

June 2017

B.S. Statistics (**First Class Honors**)HONORS,  
AWARDS &  
CERTIFICATES

- Student Scholarship Award - Biopharmaceutical Section, American Statistical Association 2024
- Graduate Statistician Accreditation - American Statistical Association July 2023 - Aug 2030
- Lester R. Curtin Award - American Statistical Association 2022
- African American Doctoral Scholars Initiative Award - University of Utah 2020
- Carlson-Diekelman Rushall-Schroeder Memorial Endowed Scholarship, Northern Arizona University 2019
- Outstanding Graduate GPA, Northern Arizona University 2019

• **Published**

## PUBLICATIONS

1. Zheutlin, A. R., Sharareh, N., Guadamuz, J. S., **Berchie, R. O.**, Derington, C. G., Jacobs, J. A., Mondesir, F. L., Alexander, G. C., Levitan, E. B., Safford, M., Vos, R. O., Qato, D. M., & Bress, A. P. (2024). Association Between Pharmacy Proximity With Cardiovascular Medication Use and Risk Factor Control in the United States. *Journal of the American Heart Association*, 13(5), e031717. DOI
2. King, J. B., **Berchie, R. O.**, Derington, C. G., Marcum, Z. A., Scharfstein, D. O., Greene, T. H., Herrick, J. S., Jacobs, J. A., Zheutlin, A. R., Bress, A. P., & Cohen, J. B. (2023). New Users of Angiotensin II Receptor Blocker-Versus Angiotensin-Converting Enzyme Inhibitor-Based Antihypertensive Medication Regimens and Cardiovascular Disease Events: A Secondary Analysis of ACCORD-BP and SPRINT. *Journal of the American Heart Association*, 12(17), e030311. DOI
3. Catherine G. Derington, Adam P. Bress, **Ransmond O. Berchie**, Jennifer S. Herrick, Jincheng Shen, Jian Ying, Tom Greene, Gabriel S. Tajeu, Swati Sakhuja, Natalia Ruiz-Negrón, Yiyi Zhang, George Howard, Emily B. Levitan, Paul Muntner, Monika M. Safford, Paul K. Whelton, William S. Weintraub, Andrew E. Moran, Brandon K. Bellows. Estimated population health benefits of intensive systolic blood pressure treatment among SPRINT-eligible US adults. *American Journal of Hypertension*. hpad047
4. Derington, Catherine G., Adam P. Bress, Jennifer S. Herrick, Joshua A. Jacobs, Alexander R. Zheutlin, **Ransmond O. Berchie**, Molly B. Conroy, William C. Cushman, and Jordan B. King (2023). "Antihypertensive Medication Regimens Used by US Adults With Hypertension and the Potential for Fixed-Dose Combination Products: The National Health and Nutrition Examination Surveys 2015 to 2020." *Journal of the American Heart Association*
5. Alexander R. Zheutlin, Catherine G. Derington, PharmD, Jordan B. King, **Ransmond O. Berchie**, Jennifer S. Herrick, Dave L. Dixon, Jordana B. Cohen, Daichi Shimbo, Ian M. Kronish, Joseph J. Saseen, Paul Muntner, Andrew E. Moran, Adam P. Bress. Factors associated with antihypertensive monotherapy among US adults with treated high blood pressure: NHANES 2013-2018. *American Journal of Hypertension*.
6. Frempong, Nana & **Berchie, Ransmond** & Baidoo, Richard & Abijah, Benjamin & Oforiwa-Amanfo, Osei. (2021). A Simulation Study to Examine the Bias of Some Sample Measures of Skewness. *Applied Mathematical Sciences*. 15(4): 189-200. DOI:10.12988/ams.2021.914276
7. Frempong NK, Nartey E, Bukari FK, **Berchie RO (2018)**. "Modelling the force of infection for Hepatitis B among heterogeneous groups at the Komfo-Anokye Teaching Hospital." *J Biostat Biometric App* , 3(1): 109.

• **Under Review**

1. Catherine G. Derington\*, **Ransmond O. Berchie\***, Daniel Scharfstein, Ryan M. Andrews, Tom H. Greene, Yizhe Xu, Jordan B. King, PharmD, Mark A. Supiano, Joshua A. Sonnen, Jeff Williamson, Nicholas M. Pajewski, Jeremy Pruzin, Jordana B. Cohen, and Adam P. Bress. Effect of initiation and continuous adherence to ARBs vs. ACEIs on risk of adjudicated mild cognitive impairment or dementia.

\*Equal contributions

Under review at: *The Journals of Gerontology Series A (Medical Sciences)*

- **Draft in Progress**

1. **Ransmond O. Berchie**, Hiddo Lambers Heerspink, Lesley Inker, Edward Vonesh, Tom H. Greene. Effect Modification by Acute Change in a Biomarker. (90% complete)
2. Ambarish Pandey, **Ransmond O. Berchie**, D. Edmund Anstey, Suzanne Judd, Daichi Shimbo, Emily B Levitan, George Howard, Monika M. Safford, Paul Muntner, Ninad S. Chaudhary, Tsegaselassie Workalemahu, Lynn B. Jorde, Rachel Hess, Robert J. Mentz, Michael E. Hall, Javed Butler, Shreya Rao, Rick A. Kittles, Leslie A. Lange, Ethan M. Lange, Marguerite R Irvin, Adam P. Bress. The Association of Genetic West African Ancestry with Incident Cardiovascular Disease among African Americans.

SCIENTIFIC  
ABSTRACTS  
AND  
PRESENTATIONS

1. **Ransmond Berchie**, Hiddo Lambers Heerspink, Lesley Inker, Tom Greene. Effect Modification by Acute Change in a Biomarker. Poster presentation at 2024 Joint Statistical Meeting, Portland, Oregon.
2. **Ransmond Berchie**, Hiddo Lambers Heerspink, Lesley Inker, Tom Greene. Implications of Acute GFR Change for the Effect of SGLT-2 Inhibitors on Long-Term Endpoints. Poster presentation at the Kidney Week 2024, San Diego, California.
3. Derington CG, Bellows BK, Tajeu GS, Herrick JS, **Berchie RO**, Ying J, Sakhuja S, Greene T, Ruiz-Negron N, Howard G, Levitan E, Muntner P, Safford MM, Weintraub WS, Moran AE, Bress AP. Distribution of predicted cardiovascular and all-cause mortality benefit of intensive vs standard blood pressure control among US adults eligible for the Systolic Blood Pressure Intervention Trial. Podium presentation for the American Heart Association Hypertension Scientific Sessions, September 2021
4. **Berchie RO**, Baidoo R, Oforiwa YA, Okpoti AN. Examining The Performance Of Some Sample Measures Of Skewness Using Monte Carlo Simulation. Podium presentation for Scientific Computing and Industrial Modeling Conference, Kwame Nkrumah University of science & Technology. November 2017.

RESEARCH  
EXPERIENCE

**Graduate Research Assistant: Study Design & Biostatistics Center (SDBC),**  
**University of Utah**

August 2020 - Present

**Mentor: Adam Bress, PharmD, MS**

Sample projects I have worked on:

- First author and leading the analysis for estimating the Per-protocol effect of initiation and continuous treatment with angiotensin-II receptor blockers versus angiotensin-converting enzyme inhibitors on cardiovascular outcomes in a dataset with > 2 million Veterans
- Co-first author and lead analyst for estimating the Per-protocol effect of initiation and continuous treatment with angiotensin-II receptor blockers versus angiotensin-converting enzyme inhibitors on cognitive outcomes in Systolic Blood Pressure Intervention Trial (SPRINT)
- Leading the data management and analysis for evaluating the association of genetic ancestry with cardiovascular disease among African Americans: Findings from the Jackson Heart Study and the Reasons for Geographic and Racial Differences in Stroke (REGARDS) cohorts
- Led the analysis for estimating the intent-to-treat effect of initiating an ACEI vs. ARB on cardiovascular disease outcomes among SPRINT and the Action to Control Cardiovascular Risk in Diabetes trial (ACCORD)-eligible US adults
- Led the data management and analysis for evaluating the association between pharmacy proximity with cardiovascular medication use and risk factor control in the United States
- Led the analysis for evaluating the Factors Associated with Antihypertensive Monotherapy Among US Adults with Treated Hypertension and Uncontrolled Blood Pressure Overall and by Race/Ethnicity, NHANES 2013-2018
- Analyst for evaluating the distribution of predicted cardiovascular and all-cause mortality benefit of intensive vs. standard blood pressure control among SPRINT-eligible US adults

**Mentor: Angela Presson, Ph.D., MS**

- Double programmer for estimating the response rate of the patient-reported outcomes 1-year post-op and identifying factors associated with the response rate among patients who had hand surgery.

**Product Development - Data and Statistical Sciences Intern**  
**Genentech Inc., South San Francisco**  
**Manager: Tracy Burgess**  
**Mentors: Rui Zhao & Courtney Schiffman**

May 2023 - Aug 2023

**Primary Endpoint Analysis in Idiopathic Pulmonary Fibrosis (IPF) Trials**

- **Assessing Efficacy with a Continuous Endpoint Truncated by Death:** Performed an extensive simulation study to explore the bias in estimating parameters when the current value of forced vital capacity (FVC) is associated with the risk of death by comparing the parameters estimates from Linear Mixed-effects Model (which assumes data not collected after death is missing at random) and Joint Model.
- **Prognostic Modeling - Identifying baseline variables that drive FVC outcome:** Implemented a modeling technique to assess whether we can use clinical variables to predict FVC outcome by using some in-house clinical trials data.

**Intern**

**SIC Life Insurance Co Ltd., Kumasi, Ghana.**

June 2015 - Aug 2015

- Data entry clerk.
- Sold policies to new clients.
- Educated clients on various products available.

**TEACHING  
EXPERIENCE**

**Part-Time Instructor, Northern Arizona University**

Jul 2020 - Aug 2020

- Remotely taught one section of Applied Statistics Summer class, with a class size of 14.
- Wrote weekly lessons, exams, and homework; graded projects and exams.
- Used relatable concepts to motivate students to overcome learning obstacles.
- Provided academic counseling to students

**Graduate Teaching Assistant, Northern Arizona University**

Aug 2018 - May 2020

- Primary instructor for two sections of Applied Statistics; with each section having 40 students.
- Taught two Quantitative Reasoning sections, each with 36 students.
- Taught one section of 72 students for a Precalculus class.
- Co-taught one section of 72 students for a Precalculus class.
- Precalculus and Quantitative Reasoning courses were taught in a modified emporium model.
- Wrote weekly lessons, exams, and homework; graded projects and exams.
- Served as a tutor and proctor at the Lumberjack Mathematics Center.
- Provided academic counseling to students

**Teaching Assistant, Kwame Nkrumah University of Science and Tech.** Aug 2017 - Aug 2018

**Mentor: Nana Kena Frempong, PhD**

- Conducted tutorials on Bayesian Statistics, Survival Analysis, Time Series Analysis, Probability and Statistics, and Statistical Methods for undergraduate students.
- Individually taught four classes of size 90 students each in a traditional lecture.
- Recorded and updated class grades for various courses.
- Offered free tutoring services to struggling and low-income students.
- Prepared academic materials for teaching, research work, and presentations.

**OTHER RELEVANT  
EXPERIENCE**

**Graduate Student Consultant, Statistical Consulting lab**

Aug 2019 - Dec 2019

**Northern Arizona University, Flagstaff, AZ**

**Mentor: Roy St. Laurent, PhD**

- Provided various support of data entry, data analysis and output interpretation for a wide group of clients including students, faculties and local community members.
- Conducted statistical analysis (ANOVA, Regression, Logistic) for various projects.

**Linen, Extraction & Cleaning Crew, Resident Life Support Services**

June 2019 - Aug 2019

**Northern Arizona University, Flagstaff, AZ**

- Coordinated team members to greet guests with enthusiasm and a friendly demeanor.
- Loaded, transported and delivered items to guests safely and on time.

- Collaborated with colleagues to assign daily clean-up tasks, ensuring no one had to work past scheduled hours.

## VOLUNTEER EXPERIENCE

- **Volunteer**, Genentech Inc.  
Genentech Gives Back Week June 2023  
Assembled clean birth kits for mothers in medically underserved communities
- **Poster Evaluator**, University of Utah 2021 Undergraduate Research  
Summer Symposium Aug 2021
- **Liaison For Freshmen**  
**Osei Kyeretwie High School, Office of the Senior House Master** May 2011 - Aug 2013
  - Registered and recorded personal information on freshmen.
  - Distributed prospectus to freshmen
  - Planted lawns and flowers on campus.

## PROFESSIONAL DEVELOPMENT

- **Drug Development eLearning Program**- Drug Information Association In Progress
- Eli Lilly Discovery Day April 4 - 6 2024
- ENAR 2024 Spring Meeting March 10 - 13 2024
- Genentech Leader - Intern Exchange (gLINX) Intern July - Dec 2023
- 2023 Utah Data Science Day - University of Utah Jan 2023
- 2022 Conference on Statistical Practice - American Statistical Association Feb 2022
- Designing Big Data Healthcare Studies I & II - LinkedIn Learning April 2020
- **Object Oriented Data Analysis in Health Sciences** -  
Institute for Mathematical and Statistical Innovation July 2023

## LEADERSHIP AND AFFILIATION

- **Graduate Student Member**; American Society of Nephrology May 2024 - Present
- **Student Member**; ENAR - International Biometric Society March 2024 - Present
- **Member**; Drug Information Association Feb 2024 - Present
- **Student Member**; Society for Epidemiologic Research Jan 2024 - Present
- **Student Member**; American Statistical Association Sep 2021 - Present
- **Member**; Interdisciplinary Association of Population Health Science Aug 2020 - Present
- **Student Member**; Royal Statistical Society Aug 2018 - Present
- **Committee member**, Population Health Sciences Student Advisory  
Committee, University of Utah. Aug 2020 - May 2021
- **Organizing Sub-Committee Head**; Presbyterian Youth and Student  
Association 2017 Planning Committee Nov 2016 - Sep 2017
- **President**; Organizing Wing, National Union of Presbyterian Students -  
Kwame Nkrumah University of science & Technology, Ghana Mar 2016 - Apr 2017
- **Organizing Secretary**; National Union of Presbyterian Students -  
Kwame Nkrumah University of science & Technology, Ghana Mar 2016 - Apr 2017

PROGRAMMING  
AND TECHNICAL  
SKILLS

- **R**: Proficient
- **SAS**: Intermediate
- **SPSS**: Proficient
- **Stan**: Proficient
- **Git**: Proficient
- **Bash/unix systems**: Intermediate
- **LaTeX**: Proficient
- **High Performance Computing**: Proficient

AD HOC  
REVIEWER  
EXPERIENCE

- **JAMA** (mentored by Dr. Adam Bress)
- **Circulation** (mentored by Dr. Adam Bress and Dr. Catherine Derington)