

CURRICULUM VITAE
ALEXANDER C. MCLAIN
[PERSONAL WEBSITE](#)

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- *Research Interests:* Neuroimaging data, multiple testing, length biased survival analysis data, longitudinal mixed-effects models, joint modeling of longitudinal and survival data, maternal and child health outcomes, missing data.

PROFESSIONAL APPOINTMENTS

- *Associate Professor,* *2018 - present*
Department of Epidemiology and Biostatistics, University of South Carolina.
- *Assistant Professor,* *2012 - 2018*
Department of Epidemiology and Biostatistics, University of South Carolina.
- *Research Fellow,* *2011 - 2012*
Biostatistics and Bioinformatics Branch, Division of Intramural Population Health Research, NICHD.
- *IRTA Postdoctoral Fellow,* *2009 - 2011*
Biostatistics and Bioinformatics Branch, Division of Intramural Population Health Research, NICHD.
- *NSF-VIGRE Postdoctoral Fellow,* *2008 - 2009*
Department of Statistics North Carolina State University.
- *Graduate Assistant,* *2003 - 2008*
Department of Statistics, University of South Carolina.

EDUCATION

- Ph.D. in Statistics, University of South Carolina, Columbia, SC *August 2008*
- M.S. in Statistics, University of South Carolina, Columbia, SC *December 2005*
- B.S. in Mathematics, University of Massachusetts, Amherst, MA *May 2002*

PROFESSIONAL ACTIVITIES

EXTERNAL SERVICE

- President, South Carolina Chapter of the *American Statistical Association* (2017–2019).
- Organized “*Modern Statistical Methods for Neuroimaging data*” session for the *International Chinese Statistical Association* meeting for March 2019.
- [Methodological Member](#) of the Editorial Review Board for *Neurosurgery* (impact factor: 4.889) and *Operative Neurosurgery* 2016–2019.
- Co-organizer of the *South Carolina Statistics Consortium (SCSC)* Conference at Clemson University November 2014 and October 2018.
- Ad hoc grant review for Medical Research Council (MRC), *2017, 2018*.

- Ad-hoc reviewer for *Biometrics*, the *Journal of the American Statistical Association*, *Statistics in Medicine*, *Journal of the Royal Statistical Society Series B*, *Lifetime Data Analysis*, the *American Journal of Epidemiology*, *Human Reproduction*, *PLOS One*, *BMC Pregnancy and Childbirth*, the *Journal of Nonparametric Statistics*, the *Journal of Statistical Planning and Inference*, *Statistics and Its Interface*, *International Journal of Biostatistics*, *Communication in Statistics*, *Journal of Statistical Theory and Practice*, the *Journal of Statistical Computation and Simulation*, the *Scandinavian Journal of Statistics*, *Statistical Methods in Medical Research*, and *BMJ Open*.
- Vice President, South Carolina Chapter of the *American Statistical Association* (2015–2017).
- Secretary, South Carolina Chapter of the *American Statistical Association* (2013–2015).
- Organized “*Methods for assessing environmental factors on reproductive outcomes*” session at the Joint Statistical Meetings, August 2013.
- Member of the American Statistical Association (ASA) and the International Biometric Society (IBS).

INSTITUTIONAL SERVICE

- Chair of the Department of Epidemiology and Biostatistics *Greeneville Health Systems* Search Committee (2018–2019)
- Chair of the Biostatistics Division Exam Committee (2016–2017)
- Member of the Biostatistics Division Exam Committee (2014–2016).
- Member of the Arnold School of Public Health, Scholastic Standards and Petitions Committee (2013–2016).
- Division of Biostatistics Admissions Committee (2013-present)
- Chair of the Biostatistics Forum for the Department of Epidemiology and Biostatistics (2014–2017)
- Department of Epidemiology and Biostatistics Search Committee (Fall 2012 – Spring 2013 & Fall 2016–Spring 2017)
- Department of Epidemiology and Biostatistics Fun and Frolic Committee (2014–present)
- Co-developer of the “Division of Intramural Population Health Research Summer Course 2011,” *Studies in Child Health & Human Development: Theory, Design and Methods*.
- Member of the Division of Intramural Population Health Research Professional Development Committee, 2010-2012.
- Judge of 2010 – 2011 NIH Graduate Student Research Symposium, Poster Competition.

PUBLICATIONS

1. **McLain A. C.** and S. Ghosh (2011). [Nonparametric estimation of the conditional mean residual life function with censored data](#). *Lifetime Data Analysis* 17, 514–532.
2. **McLain A. C.**, R. Sundaram, M. Cooney, A. Gollenberg, and G. Buck Louis (2011). [Clustering of fecundability within women](#). *Paediatric and Perinatal Epidemiology* 25, 460–465.
3. Buck Louis G., L. Iglesias Rios, **A. C. McLain**, M. Cooney, P. Kostyniak, and R. Sundaram (2011). [Persistent organochlorine pollutants and menstrual cycle length](#). *Chemosphere* 85, 1742–1748.

4. **McLain A. C.**, K. Lum, and R. Sundaram (2012). [A joint mixed effects dispersion model for menstrual cycle length and time-to-pregnancy](#). *Biometrics* 68, 648–656.
5. Sun W., and **A. C. McLain** (2012). [Multiple testing of composite null hypotheses in heteroscedastic models](#). *Journal of the American Statistical Association* 107, 673–687.
6. Sundaram R., **A. C. McLain**, and G. M. Buck Louis (2012). [A survival analysis approach to modeling human fecundity](#). *Biostatistics* 13, 4–17.
7. Chason R. J., **A. C. McLain**, R. Sundaram, Z. Chen, J. H. Segars, C. Pyper, and G. M. Buck Louis (2012). [Preconception Stress and the Secondary Sex Ratio: A Prospective Cohort Study](#). *Fertility and Sterility* 98, 937–941.
8. **McLain A. C.** and S. Ghosh (2013). [Efficient sieve maximum likelihood estimation of time-transformation models](#). *Journal of Statistical Theory and Practice*, 7, 285–303.
9. Thoma M. E., **A. C. McLain**, J. F. Louis, R. B. King, A. C. Trumble, R. Sundaram, and G. M. Buck Louis (2013). [The prevalence of infertility in the United States as estimated by the current duration approach and a traditional construct approach](#). *Fertility and Sterility*, 99, 1324–1331.
 - Link to corresponding news media on [Reuters](#) or [Mommyish.com](#) discussing the results.
 - Recognized in November 2017 as one of the most highly cited articles in *Fertility and Sterility* since 2012 ([link](#)).
10. Louis J. F., M. E. Thoma, D. N. Sørensen, **A. C. McLain**, R. B. King, R. Sundaram, N. Keiding, and G. M. Buck Louis (2013). [The prevalence of couple infertility in the United States from a male perspective: evidence from a nationally-representative sample](#). *Andrology* 1, 741–748.
11. **McLain A. C.**, R. Sundaram, M. E. Thoma, and G. M. Buck Louis (2014). Semi-parametric grouped backward recurrence Cox model for the analysis of current duration data with preferential reporting. *Statistics in Medicine*, 33 (23), 3961–3972. [Featured Article](#).
12. **McLain A. C.** and P. Albert (2014). [A random-effects model for longitudinal data with random change-point and no time zero: an application to modeling and prediction of individualized labor curves](#). *Biometrics* 70 (4), 1052–1060.
13. Buck Louis G. M., M. L. Hediger, E. M. Bell, C. A. Kus, R. Sundaram, **A. C. McLain**, E. Yeung, E. A. Hills, M. Thoma, and C. M. Druschell (2014). [Methodology for Establishing a Population-Based Birth Cohort Focusing on Couple Fertility and Children’s Development, the Upstate KIDS Study](#). *Paediatric and Perinatal Epidemiology* 28, 191–202.
14. Laughon S. K., **A. C. McLain**, R. Sundaram, J. M. Catov and G. M. Buck Louis (2014). [Maternal lipid change in relation to length of gestation: a prospective cohort study with preconception enrollment of women](#). *Gynecologic and Obstetric Investigation* 77, 6–13.
15. Sapra K.J., **A. C. McLain**, J. M. Maisog, R. Sundaram, G. M. Buck Louis (2014). [Successive Time-to-Pregnancy Among Women Experiencing hCG Pregnancy Loss](#). *Human Reproduction* 29, 2553–2559.
16. **McLain A. C.**, R. Sundaram, and G. M. Buck Louis (2015). [Joint analysis of longitudinal and survival data measured on nested time-scales using shared parameter models: an application to fecundity data](#). *Journal of the Royal Statistical Society: Series C* 64, 339–357.
17. Cummings T. H., J. W. Hardin, **A. C. McLain**, J. R. Hussey, K. J. Bennett and G. M. Wingood (2015). [Modeling Heaped Count Data](#). *The Stata Journal* 15, 457–479.

18. Yeung E.H., **A. C. McLain**, N. Anderson, D. Lawrence, N. Boghossian, C. Druschel, E. Bell (2015). [Newborn adipokines and birth outcomes](#). *Paediatric and Perinatal Epidemiology* 29, 317–325.
19. Buck Louis G. M., C. Druschel, E. Bell, J. E. Stern, B. Luke, **A. C. McLain**, R. Sundaram, and E. H. Yeung (2015). [Use of assisted reproductive technologies treatment as reported by mothers in comparison to registry data, Upstate KIDS Study](#). *Fertility and Sterility* 103, 1461–1468.
20. Sapra K.J., **A. C. McLain**, J. M. Maisog, R. Sundaram, G. M. Buck Louis (2015). [Clustering of retrospectively reported and prospectively observed time-to-pregnancy among women in a preconception cohort](#). *Annals of Epidemiology* 25, 959–963.
21. **McLain A. C.**, R. Sundaram, and G. M. Buck Louis (2016). [Modeling fecundity in the presence of a sterile fraction using a semi-parametric transformation model for grouped survival data](#). *Statistical Methods in Medical Research* 25, 22–36.
22. Mulatya[†] C.M., **A.C. McLain**, B. Cai, J.W. Hardin, P.S. Albert (2016). [Estimating time to event characteristics via longitudinal threshold regression models – an application to cervical dilation progression](#). *Statistics in Medicine* 35: 4368–4379.
23. McMahan C., **A.C. McLain**, C. Gallagher, and E. Schisterman (2016). [Regression analysis of pooled biomarkers](#). *Biomedical Journal* 58:4, 944–961.
24. Zhou J., J. Zhang, **A.C. McLain** and B. Cai (2016). [Multiple imputation approach for semiparametric cure model with interval censored data](#). *Computational Statistics and Data Analysis* 99, 105–114.
25. Cipolli W., T. Hanson, and **A.C. McLain** (2016). [Bayesian Nonparametric Multiple Testing](#). *Computational Statistics and Data Analysis*, 101, 64–79.
26. Fleischer N.L., Y. Wu , A.K. Henderson , A.D. Liese and **A.C. McLain** (2016). [Health Disparities in Diabetes Prevalence by Education and Race/Ethnicity in the United States, 1973-2012](#). *American Journal of Preventive Medicine* 51:6 947–957.
27. Stern J., **A.C. McLain**, G.M.B. Louis, B. Luke, and E.H. Yeung (2016). [Accuracy of Self-Reported Survey Data on Assisted Reproductive Technology Treatment Parameters and Reproductive History](#). *American Journal of Obstetrics & Gynecology* 215:2, 219.e1–219.e6.
28. Yeung E.H., G.M.B. Louis, D. Lawrence, K. Kurunthachalam, **A.C. McLain**, M. Caggana, C. Druschel, and E. Bell (2016). [Eliciting parental support for the use of newborn blood spots for population health research](#). *BMC Medical Research Methodology* 16:14, 1-10.
29. Mondesir F.L., K. White, A.D. Liese and **A.C. McLain** (2016). [Gender differences in illness-related diabetes social support and glycemic control among middle-aged and older adults](#). *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 71:6, 1081–1088.
30. Polis C.B., C.M. Cox, Ö. Tunçalp, **A.C. McLain**, M.E. Thoma (2017). [Estimating infertility prevalence in low-to-middle-income countries: An application of a current duration approach to Demographic and Health Survey data](#). *Human Reproduction*, 32(5), 1064–1074.
 - Link to corresponding *Global Health Now* blog [post](#), University of Maryland School of Public Health [post](#) and the University of South Carolina Arnold School of Public Health [post](#).
 - Honorable mention for the [Winners of the Untold Global Health Stories of 2019](#).
31. Lin Y., **A.C. McLain**, J.C. Probst, K.J. Bennett, Z. Qureshi, and J.M. Eberth (2017). [Health-Related Quality of Life among Adults 65 and Older in the United States, 2011-2012: A Multilevel Small Area Estimation Approach](#). *Annals of Epidemiology* 27:1, 52–58.

32. Broadney M., N. Chahal, K. Michels, **A.C. McLain**, A. Ghassabian, D. Lawrence, and E. Yeung (2017). [Impact of Parental Obesity on Neonatal Markers of Inflammation and Immune Response](#). *International Journal of Obesity* 41:1, 30–37.
33. Chahal B., **A.C. McLain**, A. Ghassabian, K.A. Michels, E.M. Bell, D.A. Lawrence, and Yeung E.H (2017). [Maternal smoking and newborn cytokine and immunoglobulin levels](#). *Nicotine & Tobacco Research* 19:7, 789–796.
34. Ghassabian A., R. Sundaram, N. Chahal, **A.C. McLain**, E.M. Bell, D.A. Lawrence, S.E. Gilman and Yeung E.H (2017). [Determinants of Neonatal Brain Derived Neurotrophic Factor and Association with Child Development](#). *Development and Psychopathology* 29:4 1499–1511.
35. Liu D., E.H. Yeung, **A.C. McLain**, Y. Xie, G.M. Buck Louis, R. Sundaram (2017). [A two-step approach for analysis of nonignorable missing outcomes in longitudinal regression: an application to Upstate KIDS Study](#). *Paediatric and Perinatal Epidemiology* 31:5 468–478.
36. Lynes, C., N. Boghossian, K.L. Grantz, **A.C. McLain**, J. Liu, S. Hinkle, E. Yeung, P.S. Albert (2017). [Interpregnancy weight change and adverse maternal outcomes: a retrospective cohort study](#). 27:10 632–637.e5 *Annals of Epidemiology*.
37. Polinski K., J. Liu, N. Boghossian, **A.C. McLain** (2017). [Maternal Obesity, Gestational Weight Gain and Offspring’s Asthma in the United States, 2001–2005](#). *Preventing Chronic Disease* 14:E109.
38. Eberth* J.M., **A.C. McLain***, Y. Hong[†], E. Sercy, A. Diedhiou, D. J. Kilpatrick (2018). [Estimating county-level tobacco use and exposure in South Carolina: a spatial model-based small area estimation approach](#). *Annals of Epidemiology* 28:7 481–488.e4.
39. Geraci, M., and **A.C. McLain** (2018). [Multiple imputation for bounded variables](#). *Psychometrika* 83:4 919–940.
40. Guinter M.A., **A.C. McLain**, A.T. Merchant, D.P. Sandler, S.E. Steck (2018). [An estrogen-related lifestyle score is associated with risk of postmenopausal breast cancer in the PLCO cohort](#). *Breast Cancer Research and Treatment* 170:3 613–622.
41. Guinter M.A., **A.C. McLain**, A.T. Merchant, D.P. Sandler, S.E. Steck (2018). [A dietary pattern based on estrogen metabolism is associated with breast cancer risk in a prospective cohort of postmenopausal women](#). *International Journal of Cancer* 143:3 580–590.
42. Kasman A.M., M.E. Thoma, **A.C. McLain**, M.L. Eisenberg (2018). [Association Between Use of Marijuana and Infertility in Men and Women: findings from the National Survey of Family Growth](#). *Fertility and Sterility* 109:5 866–871.
43. Ghassabian A., R. Sundaram, N. Chahal, **A.C. McLain**, E.M. Bell, D.A. Lawrence, S.E. Gilman and Yeung E.H (2018). [Concentrations of Immune Markers in Newborn Dried Blood Spots and Early Childhood Development: Results from the Upstate KIDS Study](#). *Paediatric and Perinatal Epidemiology* 32:4 337–345.
44. **McLain A.C.**, E.A. Frongillo, E. Borghi, and J. Feng (2019). [Prediction intervals for heterogeneous penalized longitudinal models with multi-source summary measures: an application to estimating child malnutrition rates](#). *Statistics in Medicine* 38:1 1002–1012.
45. Bornstein, D., G. Grieve, M. Clennin, **A.C. McLain**, L. Whitsel, M. Beets, K. Hauret, B. Jones, M. Sarzynski (2019). [Which U.S. states pose the greatest threats to military readiness and public health? Public health policy implications for a cross-sectional investigation of cardiorespiratory fitness and injuries among U.S. Army Recruits](#). *Journal of Public Health Management and Practice* 25:1 36–44.

– USA Today [link](#) and Newsweek [link](#) to articles discussing the results.

46. Adeyeye, T.E. E.H. Yeung, **A.C. McLain**, S. Lin, D.A. Lawrence, and E.M. Bell (2019). [Wheeze and Food Allergies in Children Born via Cesarean Section - The Upstate KIDS Study](#). *American Journal of Epidemiology* 188:2 355–362.
47. Child, S., K.M. Walsemann, A.T. Kaczynski, N.L. Fleischer, **A.C. McLain**, and S. Moore (2019). [Personal Network Characteristics and BMI: The role of education among Black Americans](#). *Journal of Public Health* 41:1 130–137.
48. Li Y, K. White, K.R. O’Shields, **A.C. McLain**, AT Merchant (2019). [Light-intensity physical activity and cardiometabolic risk among middle-age and older adults with multiple chronic conditions](#). *American Journal of Health Promotion* 33:4 507–515.
49. **McLain, A.C.**, E.A. Frongillo, S.Y. Hess, E. Piwoz. [Comparison of methods used to estimate the global burden of disease related to undernutrition and suboptimal breastfeeding](#). *Advances in Nutrition* (available online).
50. Zhou, J, **A.C. McLain**, W. Lu, X. Sui, J.W. Hardin, and J. Zhang. [A Varying-Coefficient Generalized Odds Rate Model with Time-Varying Exposure: An Application to Fitness and CVD Mortality](#). *Biometrics* (available online).
51. Zhang[†] Y., **A.C. McLain**[‡], B. Davis, S. McDermott. [Fecundity and infertility among women with disability in the United States](#). *Journal of Women’s Health* (available online).
52. Guinter M.A., D.P. Sandler, **A.C. McLain**, A.T. Merchant, S.E. Steck. [An estrogen-related dietary pattern and postmenopausal breast cancer risk in a cohort of women with a family history of breast cancer](#). *Cancer Epidemiology, Biomarkers & Prevention* (available online).
53. Ghassabian A., R. Sundaram, N. Chahal, **A.C. McLain**, E.M. Bell, D.A. Lawrence, S.E. Gilman and Yeung E.H. Inflammation and Child Neurodevelopment. *The Journal of Pediatrics* (in press).
[†]Student First Author. ^{*}Dual first-authorship. [‡]Corresponding Author.

BOOK CHAPTERS AND LETTERS

- Albert, P., R. Sundaram, and **A. C. McLain** (2013). Innovative applications of shared random parameter models for analyzing longitudinal data subject to dropout. In B. C. Sutradhar (Ed.), ISS-2012 Proceedings Volume On Longitudinal Data Analysis Subject to Measurement Errors, Missing Values, and/or Outliers, Lecture Notes in Statistics, pp. 139–156. Springer New York.
- McLain, A. C., Sundaram, R., Thoma, M., and Louis, G. M. B. (2018). Cautionary note on “Semi-parametric modeling of grouped current duration data with preferential reporting”. arXiv preprint arXiv:1801.00775.

IN PROGRESS

- **McLain, A.C.**, J. Habiger, C. Rorden, and J. Fridriksson Weighted p-values for heterogeneous dependent data: an application to voxel-based lesion symptom mapping. In preparation for *Biostatistics*.
- **McLain, A.C.**, M.E. Thoma, C. Hartnett and J. Zhang. Cross-sectional length biased semi-competing risks data. In Progress.

GRANTS AND CONTRACTS

FUNDED-ONGOING

- **Estimating population level infertility and fertility treatment rates**
Source: NIH/NICHD 1R03HD097287-01, Period 1/19/19–12/30/20,
PI: McLain. Role: PI. Effort: 10%. Total Award: \$161,710.
Synopsis: The overall goal of this proposal is to develop a semi-competing risk current duration statistical methodology for nationally representative cross-sectional data, which correctly accounts for fertility treatment as a semi-competing risk and use it to estimate the magnitude and trends in infertility, identify high-risk subgroups, and monitoring the availability of fertility treatment.
- **Analysis of Country-Level Models for SDG 2.2 Stunting and Overweight.**
Source: UNICEF. Period: 1/1/19–12/31/19,
PI: McLain & Frongillo. Role: PI, 20% effort. Total Award: \$58,600
Synopsis: In this project I worked with Dr. Edward Frongillo and collaborators from the World Bank, UNICEF and the WHO. The goal of the project is to extend our previous developed statistical approaches for estimating the prevalence of various malnutrition parameters for countries in Africa to counties world-wide.
- **Feasibility of Creating Small Area Estimates Using Weighted, Multilevel Prediction Models: an Application for the National Survey of Children’s Health**
Source: CDC/NNPHI Subaward No. G1340 Period 4/01/19–7/31/19,
PI: McLain. Role: PI. Effort: 25%. Total Award: \$37,000.
Synopsis: The goal of this project is to ascertain the feasibility of creating model-based, small area (e.g., county-level) estimates of mental health outcomes among children in the U.S. Specifically, we plan to utilize data from the 2016 National Survey of Children’s Health (NSCH), supplemented with auxiliary area-level data from sources such as the American Community Survey to predict the prevalence (and 95% confidence intervals) of specified mental health outcomes of U.S. children.
- **Physical Activity, Sedentary Behavior and Weight Status in Early Childhood**
Source: NIH/NICHD 1R01HD091483, Period 12/01/17–11/30/22,
PI: Pate, Russell. Role: Co-I. Effort: 10%. Total Award: \$2,897,000.
Synopsis: This study will describe physical activity and sedentary behaviors and examine the longitudinal influences of those behaviors on weight status in a cohort of infants and toddlers, ages 6 months – 36 months.
- **What’s UP (Undermining Prevention) with Summer? Etiology of Accelerated Weight Gain during Summer vs. School Year**
Source: NIH/NIDDK 1R01DK116665-01A1, Period 9/18/18–8/31/23,
PI: Beets, Micheal. Role: Co-I. Effort: 5%. Total Award (2018 only): \$658,532.
Synopsis: The goal of this project is to collect information on where children go during summer, what they do when they get there, and how their behaviors (physical activity, sedentary, sleep, and diet) during summer depart from these behaviors during the school year and how these differ between children from low and high income households.
- **HRV Biofeedback in Pain Patients: Pilot Intervention for Pain, Fatigue & Sleep.**
Source: VA Merit (I01BX007080). Period: 4/1/15–12/31/19,
PI: Ginsberg, Jay and Burch, James. Role: Co-I, 10% effort. Total Award: \$647,858
Synopsis: This VA Merit grant is a clinical trial designed to estimate the impact heart rate variability (HRV) training has on pain, fatigue and sleep. This study has a longitudinal design and is gathering data on HRV, sleep and actigraphy.

- **Abnormal Visual Search And Motor Function In Stroke.**
 Source: AHA AWRP (17GRNT33670098), Period: 7/01/17–6/30/19,
 PI: Herter, Troy. Role: Co-I, 2.1% effort. Total Award: \$154,000.
Synopsis: The goal of this study is to determine how much impairments of visual search play a role in functional deficits following stroke. This project will pave the road for future work needed to better understand the neural mechanisms that link perceptual, cognitive and motor processes to impairments of visual search and diminished functional performance.
 - **Effects of sleep deficiency during postpartum on body weight and body fat changes in African American and White women**
 Source: NIH/NIMHD R21MD012740. Period: 06//06/18-01/31/20,
 PI: Wang, Xuewen. Role: Co-I, 5% effort. Total Award: \$184,865
Synopsis: This study is to examine whether differences in sleep between African American and White women during postpartum exist, and whether sleep deficiency affects weight and fat changes in postpartum differently between the two racial groups.
 - **A Patient-Centered Asthma Management Communication Intervention for Rural Latino Children.**
 Source: NIH/NHLBI 1K23HL133596-01A1. Period: 8/15/17–7/31/22,
 PI: Estrada, Robin. Role: Statistical Advisor, 2% effort (in kind). Total Award: \$728,285
Synopsis: The goal of this project is to determine the feasibility of a patient-centered collaborative program between rural Latino children with asthma and their families, school based nursing, and primary care providers, facilitated by the use of a smart phone based bilingual mobile application (mobile app).
- COMPLETED**
- **Comparison of methods used to estimate the global burden of nutrition-related disease conditions: SGA, anthropometry, and breastfeeding.**
 Source: Bill & Melinda Gates Foundation, Period: 3/1/2017–8/31/2017,
 PI: McLain, Alexander. Role: PI, 10% effort. Total Award: \$23,842.
Synopsis: The Institute for Health Metrics and Evaluation (IHME) is a main information source of information for global burden of disease (GBD). Other entities that produce GBD estimates include the Child Health Epidemiology Reference Group (CHERG/LiST), among others. This project we compare the statistical methods, inputs, and assumed links between risk factors and outcomes used by IHME, CHERG and others to estimate the GBD due to gestational age, stunting, wasting, sub-optimal breastfeeding and maternal BMI.
 - **Modeling Child Malnutrition Trend Estimates at Country Level.**
 Source: World Bank. Period: 1/16–12/16,
 PI: Frongillo & McLain. Role: PI, 20% effort. Total Award: \$35,569
Synopsis: In this project I worked with Dr. Edward Frongillo and collaborators from the World Bank, UNICEF and the WHO. The goal of the project was to develop a statistical approach for estimating the prevalence of various malnutrition parameters for countries in Africa using published survey data.
 - **Creating County- and Census Tract-Level Estimates of Childhood Obesity in the U.S.: A Spatial Multilevel Modeling Approach**
 Source: FORHP (5U1CRH30539-02-00) Period 9/01/2017–8/31/2018,
 PI: Probst, Jan and Eberth, Jan. Role: Co-I. Effort: 11%. Total Award: \$173,000.

Synopsis: In this study I will co-lead a project that will use small area estimation techniques to determine the prevalence of childhood obesity in counties of South Carolina.

- **Development of Sampling Weights for the Adult Tobacco Survey**

Source: SC DHEC

Period 1/01/2017-4/30/2019 ,

PI: McLain.

Role: PI. Effort: 10%. Total Award: \$27,798.

Synopsis: In this study we develop, implement and provide software for sample weights for the complex sampling design of the Adult Tobacco Survey. The survey is used to determine the prevalence of various smoking parameters in counties of South Carolina.

- **Interpersonal Agreement (IPA) with the Division of Intramural Population Health Research, NICHD.**

Source: NIH.

Period: 9/13-8/14, (original contract) 9/14-8/15, (renewal)

PI: McLain.

Role: PI, 20% effort. Total Award: \$53,200

Synopsis: In this project, I developed methodology for the analysis of fecundity data, including the current duration approach. Also, I served as a lead statistician for “The Upstate Kids Study” which was designed to determine the impact of fertility treatment through three years of age.

- **Development of Smoking Estimates for South Carolina Using Weighted, Multilevel Prediction Models.**

Source: CDC/SC DHEC.

Period: 9/14-9/16,

PI: Oldendick and Eberth.

Role: Co-I, 15% effort. Total Award: \$93,569

Synopsis: This project used spatial small area estimation models to estimate tobacco related use prevalence’s (e.g., prevalence of smoking, e-cigarettes, smokeless tobacco, etc.) in all counties of SC. The statistical methodology is a spatial (ICAR) generalized linear mixed model with sampling weights and postratification.

- **Multiple Imputation for Bounded Variables Using Flexible Transformation Models**

Source: USC/ASPIRE I.

Period: 2015-2016,

PI: Geraci, Marco.

Role: Co-I, 2% effort (in-kind). Total Award: \$15,000

Synopsis: This project developed quantile regression methods to impute data that was doubly bounded. We utilized a flexible class of transformation functions that are nonparametric and insure the boundedness of the variables.

- **Chronic social stress and accelerated aging among South Carolina women: Investigating the social, behavioral, and biological influences on aging.**

Source: USC/ASPIRE II.

Period: 2017-2018,

PI: Moore, Douglas.

Role: Co-I, 3% effort (in kind). Total Award: \$99,796

Synopsis: This project will examine the relationship between chronic stress and cellular aging processes in South Carolina. We will test whether this relationship differs between social groups and if a person’s social networks may help buffer the adverse impact of chronic stress on cellular aging.

- **Heart Rate Variability Biofeedback (HRV-B): A Patient Centered Therapy for Chronic Pain and Other Symptoms of Sickle Cell Disease,**

Source: GHS Transformative Seed Grant.

Period: 2017-2018,

PI: Burch, James.

Role: Co-I, 1% effort (in kind). Total Award: \$8,655.

- **Using tailored narratives to increase cross-racial empathy and reduce implicit racial bias: A preliminary study toward eliminating racial health disparities**

Source: USC/ASPIRE I.

Period: 2016-2018,

PI: Davis, Rachel.

Role: Co-I, 1% effort (in-kind). Total Award: \$14,990

MENTORING

ONGOING

ADVISOR

- Yuan Hong - Dissertation Advisor 2015-
PhD candidate in Biostatistics.
- Thomas LaBone - Dissertation Advisor 2016-
PhD candidate in Biostatistics.

DISSERTATION COMMITTEE MEMBER

- *Biostatistics*: Akhtar Hossain.
- *Epidemiology*: Michele Josey, Lauren Martini, Jameson Sofge, James Winstead.

MASTERS COMMITTEE MEMBER

- *Biostatistics*: Shujie Chen

COMPLETED

ADVISOR

- Caroline Mulatya - Dissertation Advisor 2013-16,
Dissertation: *Novel Methods for Analyzing Longitudinal Data with Measurement Error in Time variable*
PhD in Biostatistics. Current employment: Emmes Corporation.
- Yifang Tang - Masters Thesis Advisor 2014-15,
Thesis: *Cluster Analysis with Batch Effect*
MSPH in Biostatistics. Current employment: QM Data Analyst at Community Health Center Network.
- Mary Reither - Senior Thesis Advisor 2015-17,
Thesis: *Development of Confidence Intervals when the True Proportion is Close to Zero and its Medical Applications*
Honors College BS in Statistics. Entering the MS program in Statistics at NC State University in Fall 2017.

DISSERTATION COMMITTEE MEMBER

- *Biostatistics*: Jie Zhou, Xingling Xu, Xin Tong, Sophia Maymyers, Tammy Harris
- *Epidemiology*: Alecia Alianell, Torrance Nevels, Mark Ginter, Temilayo Adeyeye, Sazid Kahn.
- *Statistics*: Md Shamim Sarker Warasi, Peijie Hou, Chuan-Fa Tang, Piaomu Liu, Bin Yao, William Cipolli.
- *Environmental Health Science*: Daniel Kilpatrick

MASTERS COMMITTEE MEMBER

- *Biostatistics*: Myra Robinson, Jie Zhou, Farahnaz Islam
- *Epidemiology*: Favel Mondesir, Katie O-Sheilds, Chelsea Lynes, Kristen Polinski, LaQuenta L. Weldon, Stephine Clugstone, Bryn Davis, Marilyn Wende, Andrew Broadway
- *Health Promotion Education and Behavior*: Anna Mesa

TEACHING EXPERIENCE

- Introduction to Longitudinal Data Analysis, BIOS 755 ([Course Website](#)) *Spring 2017, 2018, 2019*
 - Multivariate Biostatistics, BIOS 825 ([Course Website](#)) *Spring 2016, 2019*
 - Applied Longitudinal Data Analysis, BIOS 770/STAT 771 ([Course Website](#)) *Spring 2016,*
 - Online Intermediate Biometrics, BIOS J757 *Spring 2015 & 2017,*
 - Doctoral Seminar, BIOS 845 ([Course Website](#)) *Spring 2015,*
 - Biostatistical Methods for Rates and Proportions, BIOS 759 ([Course Website](#)) *Fall 2013 & 2014,*
 - Intermediate Biometrics, BIOS 757 *Spring 2013 & 2014,*
 - Applied Multivariate Analysis,
STAT 6216, Department of Statistics, The George Washington University. *Spring 2012,*
 - *Co-Lecturer:* DESPR Summer Course, *Summer 2011,*
Seminar Topics - “Writing a paper: Methods and Results,” “Survival Analysis,” and “High-Dimensional
Data Analysis.”
 - Probability and Statistics for Engineers, *Fall 2008, Spring 2009,*
STAT 370, Department of Statistics, North Carolina State University.
 - Introduction to Descriptive Statistics, *Spring 2006, 2008,*
STAT 110, Department of Statistics, University of South Carolina.
 - Statistics for Engineers, *Fall 2007,*
STAT 509, Department of Statistics, University of South Carolina.
 - Elementary Statistics, *Fall 2003, 2004, Spring 2004, 2005,*
STAT 201, Department of Statistics, University of South Carolina.
- *All courses taught in the Department of Epidemiology and Biostatistics at the University of South Carolina unless noted otherwise.

PRESENTATIONS AND INVITED LECTURES

1. *Weighted p-values for heterogeneous dependent data: an application to voxel-based lesion symptom mapping,**
Department of Public Health Sciences,
Medical University of South Carolina, Charleston, SC *October 2018.*
2. *Comparison of methods used to estimate the global burden of nutrition-related disease conditions: Preterm birth, anthropometry, and breastfeeding,**
Program in International and Community Nutrition,
University of California Davis (via Skype) *July 2017.*
3. *Comparison of methods used to estimate the global burden of nutrition-related disease conditions: Preterm birth, anthropometry, and breastfeeding*,*
The Bill & Melinda Gates Foundation, Seattle, WA *July 2017.*
4. *An innovative small area estimation approach for estimating county-level tobacco use and exposure*,*
SC Alcohol Tobacco Survey Monthly Meeting Columbia, SC *May 2017.*
5. *Analysis of current duration data: modeling strategies and competing risks*,*
Lifetime Data Analysis Conference, Storrs, CT *May 2017.*

6. *Prediction Intervals for Penalized Longitudinal Small Area Estimation Models**,
International Conference on Advances in Interdisciplinary Statistics and Combinatorics,
Greensboro, NC October 2016.
7. *An innovative small area estimation approach for estimating county-level tobacco use and exposure**,
Conference on Geospatial Approaches to Cancer Control
and Population Sciences, Bethesda, MD September 2016.
8. *An innovative small area estimation approach for estimating county-level tobacco use and exposure**,
National Association of Chronic Disease Directors Science,
Epidemiology and Evaluation Committee Monthly Webinar July 2016.
9. *Penalized spline mixed effects model with random time shift; an application to labor curves**, (invited
session)
International 2016 ICSA Applied Statistics Symposium, Atlanta, GA June 2016.
10. *Modeling country level child malnutrition prevalence**,
Regional Consultations on Modeled Child Malnutrition Country Trends,
Cape Town, South Africa June 2016.
11. *Modeling country level child malnutrition prevalence**,
Regional Consultations on Modeled Child Malnutrition Country Trends,
UNICEF Headquarters Nairobi, Kenya June 2016.
12. *An innovative small area estimation approach for estimating county-level tobacco use and exposure**,
SC Alcohol Tobacco Survey Monthly Meeting Columbia, SC May 2016.
13. *Estimating the Prevalence of Infertility in Nigeria: Application of a Current Duration Methodologi-
cal Approach to Demographic and Health Survey Data*,
Population Association of America Annual Meeting, Washington, DC April 2016.
14. *Competing risks model for cross-sectional sampled length biased data,** (topic contributed session)
Joint Statistical Meetings, Seattle, WA August 2015.
15. *Count Regression Models that Simultaneously Model Heaping Propensity via Scaled Distributions*,
60th World Congress of the International Statistics Institute, Rio de Janeiro, Brazil July 2015.
16. *Illness-related diabetes social support and glycemic control among middle-aged and older adults*,
American Public Health Association Annual Meeting, New Orleans, LA November 2014.
17. *Newborn blood spot measured adipokines in association with infant growth to 18 months: the Upstate
KIDS study*,
The Obesity Society's 2014 Annual Scientific Meeting, Boston, MA November 2014.
18. *Novel Statistical Methods for Individualized Prediction with Applications to Obstetrical Practice*,
Division of Intramural Research, National Institutes of Health, Bethesda, MD October 2014.
19. *Analysis of current duration data: modeling strategies and competing risks,** (Invited)
Statistics Colloquia, University of South Carolina, Columbia, SC October 2014.
20. *Successive time-to-pregnancy among women experiencing hCG pregnancy loss*, (Doctoral Student
Prize Paper)
American College of Epidemiology Annual Meeting, Silver Spring, MD, September 2014.
21. *Efficiency of longitudinal first-hitting time models versus interval censored survival analysis with
application to labor duration curves,** (topic contributed session)
Joint Statistical Meetings, Boston, MA August 2014.

22. *Regression Models for Heaped Data*, (topic contributed session)
Joint Statistical Meetings, Boston, MA *August 2014.*
23. *The estimation of infertility prevalence in the United States - application of a current duration approach to a nationally representative sample*, (invited)
Intramural Research Program on Reproductive and Adult Endocrinology,
NICHD, NIH, Bethesda, MD *June 2014.*
24. *Modeling Longitudinal Data with a Random Change-point and no Time-Zero: Applications to Inference and Prediction of the Labor Curve,** (invited)
Reproductive, Environmental and Child Health (REACH) Seminar
Medical University of South Carolina, Charleston, SC *June 2014.*
25. *Modeling Longitudinal Data with a Random Change-point and no Time-Zero: Applications to Inference and Prediction of the Labor Curve*, (invited)
Statistical Analysis of Multi-Outcome Data Workshop, Cambridge, UK *June 2014.*
26. *A random-effects model for longitudinal data with a random change-point and no time zero: an application to modeling and prediction of individualized labor curves,** (invited)
Statistics and Probability Research Seminar, Department of Mathematical Sciences,
Clemson University, Clemson, SC *October 2013.*
27. *Semi-parametric grouped backward recurrence Cox model for the analysis of current duration data with preferential reporting,** (topic contributed session)
Joint Statistical Meetings, Montréal, QU *August 2013.*
28. *Semi-parametric grouped backward recurrence Cox model for the analysis of current duration data with preferential reporting,** (invited)
The 2nd Workshop on Biostatistics and Bioinformatics, Atlanta, GA *May 2013.*
29. *A random-effects model for longitudinal data with a random change-point and no time zero: an application to modeling and prediction of individualized labor curves,** (invited)
Biostatistics Forum, University of South Carolina, Columbia, SC *March 2013.*
30. *A random-effects model for longitudinal data with a random change-point and no time zero: an application to modeling and prediction of individualized labor curves,**
ENAR Spring Meeting, Orlando, FL, *March 2013.*
31. *Prediction of Multivariate Binary Data with Multi-Scale Informative Dropout- A Joint Modeling Approach,** (invited)
Department of Statistics, University of South Carolina, Columbia, SC *August 2012.*
32. *A comparison of measurement approaches for estimating the prevalence of infertility in the National Survey of Family Growth*, (Plenary session)
Meeting of the Society for Pediatric and Perinatal Epidemiologic Research, Minn., MN, *June 2012.*
33. *Prediction of Multivariate Binary Data with Multi-Scale Informative Dropout- A Joint Modeling Approach,** (invited session)
ENAR Spring Meeting, Washington, DC, *April 2012.*
34. *Prediction of Multivariate Binary Data with Multi-Scale Informative Dropout- A Joint Modeling Approach,** (invited)
Albany School of Public Health, Albany, NY, *February 2012.*

35. *Prediction of Multivariate Binary Data with Multi-Scale Informative Dropout- A Joint Modeling Approach,** (invited)
Eunice Kennedy Shriver National Institute of Child Health and Human Development
Division of Epidemiology, Statistics and Prevention Research, North Bethesda, MD, February 2012.
36. *Prediction of Multivariate Binary Data with Multi-Scale Informative Dropout- A Joint Modeling Approach,** (invited)
National Institute of Allergy and Infectious Disease, North Bethesda, MD, February 2012.
37. *Prediction of Multivariate Binary Data with Multi-Scale Informative Dropout- A Joint Modeling Approach,** (invited)
Department of Epidemiology and Biostatistics, University of South Carolina, February 2012.
38. *Multiple testing of composite null hypotheses in heteroscedastic models,**
International Conference on Multiple Comparison Procedures, Rockville, MD, September 2011.
39. *Multiple testing of composite null hypotheses in heteroscedastic models,**
Food and Drug Administration, Silver Spring, MD, May 2011.
40. *Median cost analysis for recurrent event data,**
Joint Statistical Meetings, Miami, FL, August 2011.
41. *Grouped time-transformation model with sterile fraction: An application to time to pregnancy,** (topic contributed session)
Joint Statistical Meetings, Vancouver, BC, August 2010.
42. *Joint modeling of multiple timescale longitudinal process and time to event: An application to fecundity studies,* (topic contributed session)
Joint Statistical Meetings, Vancouver, BC, August 2010.
43. *Grouped time-transformation model with sterile fraction: An application to time to pregnancy,**
ENAR Spring Meeting, New Orleans, LA, March 2010.
44. *Transforming survival data: smooth efficient analysis of transformation models,** (invited)
Biostatistics and Bioinformatics Branch DESPR/NICHD/NIH, Rockville, MD, April 2009.
45. *Accelerated testing with recurrent events and some issues in marginal models,**
PhD Dissertation Defense, University of South Carolina, Columbia, SC, July 2008.
46. *Marginal models for Cox proportional hazards regression,**
South Carolina American Statistical Association, Columbia, SC, June 2008.
47. *Marginal models with recurrent events,**
University of South Carolina Graduate Student Day, Columbia, SC, April 2008.
48. *Marginal recurrent event Cox type models,** (invited)
North Carolina State University Raleigh, NC, February 2008.
49. *Issues in marginal recurrent event modeling,** (invited)
Western Michigan University, Kalamazoo, MI, February 2008.
50. *Issues in marginal recurrent event modeling,** (invited)
University of the Pacific, Stockton, CA, February 2008.
51. *Marginal recurrent event modeling,** (invited)
Eisai Medical Research, Ridgefield Park, NJ, January 2008.
52. *Accelerated testing with recurrent events,**
ENAR Spring Meeting, Atlanta, GA, March 2007.

53. *An investigation into multicollinearity using variance inflation factor*,*
MS Thesis Defense, University of South Carolina, Columbia, SC, August 2005.

*Presenter.

POSTERS

- *Joint Model to Dynamically Predict Co-morbidity Risks for Chronic Disease Patients*,
Discover USC, Columbia, SC April 2019.
- *Randomized Trial of Heart Rate Variability Biofeedback for Improved Cognitive Function*,
Discover USC, Columbia, SC April 2019.
- *Heart Rate Variability Biofeedback for Pain, Stress, Fatigue, and Depression among Veterans*,
AAPB Annual Meeting, Denver, CO March 2019.
- *Randomized Trial of Heart Rate Variability Biofeedback for Improved Cognitive Function*,
AAPB Annual Meeting, Denver, CO March 2019.
- *Trends in Gestational Weight Gain in South Carolina, 2004 - 2015*,
The American Public Health Association, San Diego, CA November 2018.
- *Heart Rate Variability Biofeedback among Veterans: Pilot Intervention for Pain, Stress, Fatigue, Depression, and Sleep Disturbance*,
Veterans Association Southeast Network Meeting November 2018.
- *Residential segregation and racial bias: Understanding the role of urban/rural residence*,
Ninth Biennial Conference of the Urban History Association, Columbia, SC July 2018.
- *Personal Network Characteristics of Black Americans: Associations with Body Mass Index and the Role of Education*,
APHA 2017 Annual Meeting & Expo, Atlanta, GA Nov 2017.
**Honorable Mention for the Betty J. Cleckley Minority Research Award (presented by Stephanie Child).*
- *Public health implications for an investigation of state-level associations between cardiorespiratory fitness and BMI with training-related injuries among US Army Recruits*,
APHA 2017 Annual Meeting & Expo, Atlanta, GA Nov 2017.
- *Distribution Of Cardiorespiratory Fitness Levels Of US Army Recruits From 2010-2013 By State*,
ACSM's 2017 Annual Meeting and World Congresses, Denver, CO June 2017.
- *Light Intensity Physical Activity and Cardiometabolic Risk Factor Control Among Middle-Aged and Older-Adults*,
Society for Epidemiologic Research 50th Annual Meeting, Seattle, WA June 2017.
- *Wheeze and Food Allergies in Children Born via Cesarean Section - The Upstate KIDS Study*,
30th Annual Meeting for Society for Pediatric and Perinatal Epidemiologic Research (SPER), Seattle, WA June 2017.
- *Using Spatial Mixed Models for Small Area Estimation: An Application using 2014-2015 SC Adult Tobacco Survey Data*,
National Conference on Tobacco or Health, Austin, TX March 2017.
- *Impact of Maternal Obesity on Neonatal Markers of Inflammation and Immune Response*,
2016 Epidemiology Congress of the Americas, Miami, FL June 2016.

- *Impact of Maternal Obesity on Neonatal Markers of Inflammation and Immune Response*,
Society for Pediatric and Perinatal Epidemiologic Research Annual Meeting, Miami, FL June 2016.
- *Impact of Maternal Smoking on Neonatal Markers of Inflammation and Immune Response*,
Pediatric Academic Societies, Baltimore, MD May 2016.
- *Impact of Maternal Smoking on Neonatal Markers of Inflammation and Immune Response*,
NIH Postbac Poster Day, Bethesda, MD April 2016.
- *Accuracy of self-reported survey data on ART treatment and reproductive history from the Upstate KIDS study*,
71st American Society for Reproductive Medicine Annual Meeting, Baltimore, MD October 2015.
- *Estimating time to event characteristics via longitudinal threshold regression models - an application to cervical dilation progression*,
Joint Statistical Meetings, Seattle, WA August 2015.
- *Estimating Time to Cervical Dilation Progression Longitudinal Threshold Regression Model versus Interval-Censored Survival Model*,
South Carolina Statistics Consortium, Clemson, SC November 2014.
- *Clustering of Retrospectively Reported and Prospectively Observed Time-To-Pregnancy Among Women in a Preconception Cohort*,
American College of Epidemiology Annual Meeting, Silver Spring, MD, September 2014.
- *Eliciting Parental Support for the Use of Newborn Blood Spots for Population Health Research*,
American College of Epidemiology Annual Meeting, Silver Spring, MD, September 2014.
- *Successive time-to-pregnancy among women experiencing hCG pregnancy loss*,
Society for Pediatric and Perinatal Epidemiologic Research Annual Meeting, Seattle, WA June 2014.
- *Blood spot adiponectin and infant birth size*,
Society for Pediatric and Perinatal Epidemiologic Research Annual Meeting, Seattle, WA June 2014.
- *The prevalence of infertility as estimated by a current duration approach and a traditional construct approach*,
National Institutes of Health Research Festival, Bethesda, MD October 2012.
- *Prevalence of couple infertility in the US based on male reporting: evidence from a nationally representative survey*,
National Institutes of Health Spring Research Festival, Bethesda, MD April 2012.
- *Stress and menstrual cycle characteristics*,
International Society for Environmental Epidemiology, Barcelona, Spain, September 2011.
- *Joint modeling of menstrual cycle length and time to pregnancy*,
ENAR Spring Meeting, Miami, FL, March 2011.
- *Persistent organochlorine pollutants and menstrual cycle length*,
Society for Pediatric and Perinatal Epidemiologic Research, Montreal, QC, March 2011.
- *Persistent organochlorine pollutants and menstrual cycle length*,
National Institutes of Health Summer Poster Day, Bethesda, MD, August 2010.
- *Organochlorine pesticides and time to pregnancy*,
National Institutes of Health Summer Poster Day, Bethesda, MD, August 2010.

- *Intergenerational time to pregnancies and in utero tobacco exposure*,
Society for Pediatric and Perinatal Epidemiologic Research, Seattle, WA, *June 2010.*
 - *Issues in marginal recurrent event modeling*,*
Southern Regional Council on Statistics, Charleston, SC, *June 2008.*
 - *Marginal models for Cox proportional hazards regression*,*
Current and Future Trends in Nonparametrics, Columbia, SC, *October 2007.*
- *Presenter

HONORS AND AWARDS

- *Two Thumbs Up Award*, Delta Alpha Pi Honor Society, 2012–2013.
- IRTA Postdoctoral Research Fellowship, 2009-2011.
- NSF-VIGRE Postdoctoral Research Fellowship, 2008-2009.
- Outstanding Graduate Assistant Award, Department of Statistics, University of South Carolina, 2008.
- R.L. Anderson Student Paper Award, Southern Regional Council on Statistics (SRCOS), 2008.
- ASA Travel Award to attend 2008 SRCOS SRC, 2008.
- Research Fellowship under NIH Grant 2 R01 GM56182 Summer 2007, 2008
- University of South Carolina Graduate School Award to present a dissertation-based paper at the Eastern North American Region spring meeting, Atlanta, Georgia. March 2007.
- Outstanding Substitute Teacher Award, Binghamton City School District, October 2003.

REFERENCES

- Available upon request.