JONATHAN CHIPMAN

Curriculum Vitae, Updated: December 8, 2018

Department of Biostatistics
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RESEARCH INTERESTS:

Experimental and observational study design and
Risk prediction model evaluation

Including but not limited to: Sequential, covariate-adjusted randomization; adaptive monitoring of clinical trials
using clinically-based interval null hypotheses; causal inference; prediction model calibration

EDUCATION:

PhD Candidate – Biostatistics *Vanderbilt University, Nashville, TN* *Current*
    Advisor: Dr. Robert Alan Greevy, Jr, PhD
MS – Biostatistics *University of Minnesota, Minneapolis, MN* *July 2010*
BS – Statistical Science *Brigham Young University, Provo, UT* *Apr. 2008*
    Minors – Mathematics and Business Management

LANGUAGES:

Spoken: English and Portuguese
Computer: R, SAS, Python, SQL, and UNIX

COLLABORATIVE APPOINTMENTS:

Research Assistant: Pharmacoepidemiology studies on Type II Diabetes *Veteran's Administration* *Jul 2016 – Current*
Vanderbilt research team that investigates the impact of Type II Diabetes medication upon clinical outcomes using causal inference methods.
Advisors: Robert Greevy, Amber Hackstadt, and Christianne Roumie
- Worked with VA Database including 2.39M new instances of Type II Diabetes Medicine between 2001-2015
- Helped design retrospective study of renally comprised patients with T2 Diabetes to compare continued use of metformin vs sulfonyrea
- Combined data from multiple sources including VA, Medicare, Medicaid, and National Death Index
- Quantified possible residual frailty bias upon medication's effect upon mortality among hospitalized patients with Type II Diabetes
- Applied propensity score methods in multiple and ongoing time-to-event analyses

Master Statistician II: Department of Biostatistics and Computational Biology *Dana-Farber Cancer Institute* *Aug. 2010 – June 2014*
Dana-Farber, a Harvard-affiliated cancer institute, provides patient care and advances cancer research.
Advisors: Giovanni Parmigiani, Meredith Regan, and Su-Chun Cheng
- Led data management and analysis of three Prostate Cancer cohorts (each with n > 600): PROSTQA, PROSTQA-RP2, and EDRN
- Maintained development and release of BRCAPRO - R software to predict carrying BRCA gene mutations
- Determined urinary TMPRS2:ERG cut point for detecting Prostate Cancer in EDRN cohort
- Created R package for NCI - CCRAT (Colorectal Cancer Risk Assessment Tool)
- Validated new QOL instrument, EPIC-CP
- Reviewed 75+ proposed study protocols for Scientific Review Committee

Research Assistant: SMART and START Clinical Trials *University of Minnesota (UM)* *Aug 2008 – June 2010*
UM Biostatistics faculty compare management strategies of Anti-Retroviral Therapy (ART). START began enrolling 4000 subjects in 2009.
Advisors: Jim Neaton and Birgit Grund
- Simulated plausible scenarios where DSMB must evaluate pros and cons for possible early study termination
- Created primary and secondary ART datasets for downstream analysis
- Created participant-specific CD4+ and HIV RNA time plots – automatically updated and accessed worldwide by study sites

Data Analyst: Department of Psychiatry *University of Utah*   *June 2008 – Aug. 2008*
Dr. Janet Lainhart's research lab assesses functional and structural brain differences in Autism.
- Validated structural brain differences in Autism using linear models and factor analysis
- Performed mixed model analysis to compare blood flow between left and right-side brain white matter

Data Analyst: Myositis Natural History Study *National Institutes of Health–NIEHS*   *May 2007 – Aug. 2007*
This NIH lab explores endothelial markers as possible indicators of Myositis disease activity.
- Cleaned and merged 15 datasets for two biomarker studies
- Performed non-parametric analysis comparing biomarkers among controls to patients with Idiopathic Inflammatory Myopathies

Research Assistant: Survey Sampling *Brigham Young University*   *Aug. 2005 – May 2007*
The Utah Colleges Exit Poll (UCEP) designs, implements, and announces on election evening polling results on KBYU TV.
- Compared the precision of seven sample designs
- Reduced survey error by half using Total Republican Vote as an auxiliary variable for ratio estimation
- Presented and authored the final report, *The Utah Colleges Exit Poll – Comparing Efficiency of Different Designs*

PROFESSIONAL ENGAGEMENT:

Current Professional Organizations
- American Statistical Association
- International Biometric Society
- DIA Bayesian Scientific Working Group

Journal Reviews
- Statistics in Medicine (2017, 2018)
- BMC Medical Research Methodology (2017)
- Breast Cancer Research and Treatment (2013)
- Quality of Life Research (2013)

PRESENTATIONS:

Conference Session Organizer
- *Increasing Efficiency and Integrity of Randomized Trials: Covariate-Adjusted Randomization and Monitoring Patient Accrual and Selection Bias*, Joint Statistical Meetings – Biopharmaceutical Section (2017)

Invited Talks
- *Good Practices and Implementation Methods for Optimally Stratified Randomization*, Midwest Biopharmaceutical Statistics Workshop (2016)
- *Techniques for Matched Randomization in Sequential Enrollment Trials*, Dana-Farber Cancer Institute (2017)
- *Adaptively Monitoring Clinical Trials with Second-Generation p-values*, Brigham Young University (2018)

Conference Contributed Talks:
- *Simpson's Paradox in the IDI*, Eastern North American Region International Biometric Society (2015)
- *Techniques for Matched Randomization in Sequential Enrollment Trials*, Joint Statistical Meetings (2017)
- *Adaptive Monitoring of Clinical Trials Using the Second Generation p-value*, Society of Clinical Trials (2018)

Conference Contributed Posters:
- *Simpson's Paradox in the Integrated Discrimination Improvement*, Joint Statistical Meetings (2015)
- *Practical Recommendations for Matched Sequential Randomization*, Translational Science (2016)
- *Adaptive Monitoring of Clinical Trials Using the Second Generation p-value*, ASA Biopharmaceutical Section (2018)

Internal to Institution Seminars
- *Exporting R output to Word using R2wd*, Dana-Farber Cancer Institute (2014)
- *Practical Guidance for Optimally Stratified Randomization in Sequential Entry Randomized Controlled Trials*, Vanderbilt Center for Quantitative Sciences (2017)
- *Techniques for Matched Randomization in Sequential Enrollment Trials*, Vanderbilt Clinical Research Center (2017)
- *Adaptively Monitoring Clinical Trials with Second-Generation p-values*, VU Biostatistics Departmental Seminar (2017)

AWARDS:

Scholarships
- Full- and Half-Tuition Undergraduate Academic Scholarship, Brigham Young University (2004-2008)
- NIH National Research Service Award, University of Minnesota Department of Biostatistics (2008-2010)
- University Graduate Fellowship, Vanderbilt University (2014-2019)
- NIH TL1 Training Grant, Vanderbilt University (2015-2016)

Travel Grants
- Biopharmaceutical Applied Statistics Symposium (2016)
- Midwest Biopharmaceutical Statistics Workshop (2016)
- Vanderbilt University Department of Biostatistics (2018)
- ASA Biopharmaceutical Section (2018)

Research
- Outstanding Research Assistantship Award, University of Minnesota Department of Biostatistics (2009)

Teaching
- Distinguished Teaching Assistant, Vanderbilt University Department of Biostatistics (2018)

TEACHING ASSISTANTSHIPS:

- Introduction to Statistics for undergraduates, Brigham Young University (2006, 2007)
- Utah Colleges Exit Poll (survey sampling), Brigham Young University (2006, 2007)
- Advanced Statistical Programming (SAS, R, and MYSQL), Brigham Young University (2007)
- Statistical Methods for Research 2 (non-statistics graduate students), Brigham Young University (2008)
- Survival Analysis, Vanderbilt University (2015)
- Introduction to Statistical Computing (R, GitHub), Vanderbilt University (2016)
- Contemporary Statistical Inference, Vanderbilt University (2017)
- Clinical Trials, Vanderbilt University (2018)
- Collaboration, Vanderbilt University (2018)

ARTICLES IN REFEREED JOURNALS:

1. Bigler ED, Abildskov TJ, Petrie JA, Johnson M, Lange N, **Chipman J**, Lu J, McMahon W, Lainhart JE. Volumetric and voxel-based morphometry findings in autism subjects with and without macrocephaly. *Dev Neuropsychol*. 2010;35(3):278-95. doi: 10.1080/87565641003696817. PubMed PMID: 20446133.

2. Chang P, Szymanski KM, Dunn RL, **Chipman JJ**, Litwin MS, Nguyen PL, Sweeney CJ, Cook R, Wagner AA, DeWolf WC, Bubley GJ, Funches R, Aronovitz JA, Wei JT, Sanda MG. Expanded prostate cancer index composite for clinical practice: development and validation of a practical health related quality of life instrument for use in the routine clinical care of patients with prostate cancer. *J Urol*. 2011 Sep;186(3):865-72. doi: 10.1016/j.juro.2011.04.085. Epub 2011 Jul 23. PubMed PMID: 21788038.

3. Kazer MW, Bailey DE Jr, **Chipman J**, Psutka SP, Hardy J, Hembroff L, Regan M, Dunn RL, Crociani C, Sanda MG; PROSTQA Consortium Study Group. Uncertainty and perception of danger among patients undergoing treatment for prostate cancer. *BJU Int*. 2013 Mar;111(3 Pt B):E84-91. doi: 10.1111/j.1464-410X.2012.11439.x. Epub 2012 Sep 18. PubMed PMID: 22985348.

4. Biswas S, Atienza P, **Chipman J**, Hughes K, Barrera AM, Amos CI, Arun B, Parmigiani G. Simplifying clinical use of the genetic risk prediction model BRCAPRO. *Breast Cancer Res Treat*. 2013 Jun;139(2):571-9. doi: 10.1007/s10549-013-2564-4. Epub 2013 May 21. PubMed PMID: 23690142; PubMed Central PMCID: PMC3699331.

5. **Chipman J**, Drohan B, Blackford A, Parmigiani G, Hughes K, Bosinoff P. Providing access to risk prediction tools via the HL7 XML-formatted risk web service. *Breast Cancer Res Treat*. 2013 Jul;140(1):187-93. doi: 10.1007/s10549-013-2605-z. Epub 2013 Jun 23. PubMed PMID: 23793601.

6. **Chipman JJ**, Sanda MG, Dunn RL, Wei JT, Litwin MS, Crociani CM, Regan MM, Chang P; PROST-QA consortium. Measuring and Predicting Prostate Cancer Related Quality of Life Changes using the Expanded Prostate Cancer Index Composite for Clinical Practice (EPIC-CP). *J Urol*. 2013 Sept; doi: 10.1016/j.juro.2013.09.040. Article in Press. PubMed PMID: 24076307.

7. Hoppe BS, Michalski JM, Mendenhall NP, Morris CG, Henderson RH, Nichols RC, Mendenhall WM, Williams CR, Regan MM, **Chipman JJ**, Crociani CM, Sandler HM, Sanda MG, Hamstra DA. Comparative effectiveness study of patient-reported outcomes after proton therapy or intensity-modulated radiotherapy for prostate cancer. *Cancer*. 2014 Apr 1;120(7):1076-82. doi: 10.1002/cncr.28536. Epub 2013 Dec 30. PubMed PMID: 24382757; PubMed Central PMCID: PMC4103169.

8. Mazzola E, **Chipman J**, Cheng SC, Parmigiani G. Recent BRCAPRO upgrades significantly improve calibration. *Cancer Epidemiol Biomarkers Prev*. 2014 Aug;23(8):1689-95. doi: 10.1158/1055-9965.EPI-13-1364. Epub 2014 Jun 2. PubMed PMID: 24891549; PubMed Central PMCID: PMC4119541.

9. Mihalcik S, **Chipman J**, Sanda M, Kaplan I, Crociani C, Chang P, and PROST-QA Consortium. Predicting erectile function following radiation therapy for prostate cancer at the point of care. *J Urol* 2016 Apr; 195(4): e150.

10. Biswas S, Atienza P, **Chipman J**, Blackford AL, Arun B, Hughes K, Parmigiani G. A two-stage approach to genetic risk assessment in primary care. *Breast Cancer Res Treat*. 2016 Jan;155(2):375-83. doi: 10.1007/s10549-016-3686-2. Epub 2016 Jan 19. PubMed PMID: 26786860; PubMed Central PMCID: PMC4742331.

11. Sanda M, Feng Z, Howard D, Tomlins S, Sokoll L, Chan D, Regan M, Groskopf J, **Chipman J**, Patil D, Salami S, Scherr D, Kagan J, Srivastava S, Thompson I, Siddiqui J, Fan J, Joon A, Bantis L, Rubin M, Chinnayian A, Wei J, and the EDRN-PCA3 Study Group (2017). Association Between Combined TMPRSS2:ERG and PCA3 RNA Urinary Testing and Detection of Aggressive Prostate Cancer. *JAMA Oncology*, 3(8), 1085–1093. http://doi.org/10.1001/jamaoncol.2017.0177

12. **Chipman J**, Braun D (2017). Simpson's paradox in the integrated discrimination improvement. *Statistics in medicine*, 36(28), 4468-4481.

13. Pencina M, **Chipman J**, Steyerberg E, Braun D, Fine J, D'Agostino R (2017). Authors' response to comments. *Statistics in medicine*, *36*(28), 4511-4513.

14. Presley CA, Min JY, **Chipman J**, Greevy R, Grijalva C, Griffin M, Roumie C (2018) Validation of an algorithm to identify heart failure hospitalisations in patients with diabetes within the veterans health administration, *BMJ Open* 2018;**8:**e020455. doi: 10.1136/bmjopen-2017-020455

15. Mihalcik SA, **Chipman JJ**, Sanda MG, Regan MM, Kaplan ID, Wagner AA, Crociani CM, Chang P, and the PROST-QA Consortium (2018). Predicting erectile function following external beam radiation therapy or brachytherapy for prostate cancer using EPIC-CP, *Practical Radiation Oncology*, Volume 8 , Issue 6 , 445 – 451

16. Min JY, Griffin MR, **Chipman J**, Hackstadt AJ, Greevy, RA, Grijalva, CG, Hung AM, Roumie CL (2018). Recent metformin adherence and the risk of hypoglycaemia in the year following intensification with a sulfonylurea. *Diabetic Medicine*.

B O O K C H A P T E R S :

1. **Chipman J** (2017). Restricted Randomization: Pros and Cautions. In Randomization, Masking, and Allocation Concealment (pages 51-60). CRC Press.