

# Harlan Campbell, PhD.

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## EDUCATION

- Sept, 2015 - June, 2019      **University of British Columbia**, PhD - Statistics  
Supervisor: Prof. Paul Gustafson, [link](#)
- Sept, 2009 - Dec, 2011      **Simon Fraser University**, Master of Science - Statistics  
Supervisor: Prof. Charmaine Dean, [link](#)
- Sept, 2004 - Dec, 2008      **McGill University**, Bachelor of Science - Mathematics  
Minor concentration in Music

## EMPLOYMENT

- July, 2019 -      **University of British Columbia** –Postdoctoral Research Fellow  
Funding from ReCoDID (EU Horizon 2020, CIHR), [link](#); and the World Health Organization; [link](#).
- August, 2020 -      **Precision HEOR** –Statistician  
Consultant for network meta-analysis to support the development and commercialization of novel healthcare innovations; [link](#).
- July, 2012 - Dec, 2017      **EMMES Canada CRO** –Statistician  
Statistical services as a partner to clinicians and scientists for studies including:
- mTBI Mechanisms of Action of HBO2 for Persistent Post-Concussive Symptoms (BIMA), [link](#);  
Sponsor: U.S. Army Medical Research and Materiel Command
  - Causal Inference Evaluation of the Healthy Schools BC Program;  
Sponsor: BC Centre for Disease Control
  - The Age-Related Eye Disease Study 2 (AREDS2), [link](#);  
Sponsor: National Eye Institute
  - Comparison of Home Sampling of A1c with Blotter Paper to A1c from Local In-lab Venous Blood Sample, [link](#);  
Sponsor: LifeLabs Medical Laboratory Services

- Sept - Dec, 2011      **Cardiome Pharma** –Statistics Internship  
Developing tools for longitudinal data analysis and visualization.
- 2011 - 2017      **Independent Consulting** –Statistics for various clients including:  
 - Taking Root (2015 - 2017)  
 - SFU Glaciology Research (2015)  
 - Culex Environmental (2011 - 2012)

## RESEARCH

### Statistics Publications

- 2022 re:Linde et al. (2021) – The Bayes factor, HDI-ROPE and frequentist equivalence tests can all be reverse engineered -almost exactly- from one another: Reply to Linde et al. (2021), H Campbell and P Gustafson, in press at Psychological Methods, 2021. [link](#)
- 2022 Systematic review reveals lack of causal methodology applied to pooled longitudinal observational infectious disease studies, H Hufstedler, S Rahman, AM Danzer, H Goymann, VMT de Jong, H Campbell, P Gustafson, TPA Debray, T Jaenisch, L Maxwell, EC Matthay, T Bärnighausen, Journal of Clinical Epidemiology, (2022). [link](#)
- 2021 Inferring the COVID-19 IFR with a simple Bayesian evidence synthesis of seroprevalence study data and imprecise mortality data, H Campbell and P Gustafson, Epidemiology and Infection, (2021). [link](#)
- 2021 Bayesian adjustment for preferential testing in estimating infection fatality rates: Theory and methods as motivated by the COVID-19 pandemic, H Campbell, P de Valpine, L Maxwell, VMT de Jong, T Debray, T Jaenisch, P Gustafson, The Annals of Applied Statistics, (2021). [link](#)
- 2021 What to make of equivalence testing with a post-specified margin?, H Campbell and P Gustafson, Meta-Psychology, (2021). [link](#)
- 2021 A few things to consider when deciding whether or not to conduct underpowered research (letter to the editor), Journal of Clinical Epidemiology, (2021). [link](#)
- 2021 Measurement error in individual participant data meta-analysis - a Bayesian framework for continuous outcome data, H Campbell, VMT de Jong, T Jaenisch, T PA Debray, P Gustafson, Research Synthesis Methods, (2021). [link](#)
- 2021 Current trends in the application of causal inference methods to pooled longitudinal observational infectious disease studies – A protocol for a methodological systematic review, H Hufstedler, E C. Matthay, S Rahman, VMT de Jong, H Campbell, P Gustafson, T Debray, T Jaenisch, L Maxwell, T Bärnighausen, PLoS ONE, (2021). [link](#)
- 2021 The consequences of checking for overdispersion and zero-inflation, H Campbell, Methods in Ecology and Evolution, 12:4 (2021): 665-680. [link](#)

- 2021 Current trends in the application of causal inference methods to pooled longitudinal non-randomised data: a protocol for a methodological systematic review, E Yeboah, NS Mauer, H Hufstedler, S Carr, EC Matthay, L Maxwell, S Rahman, T Debray, VMT de Jong, H Campbell, P Gustafson, T Jaenisch, T Bärnighausen, *BMJ Open*, (2021). [link](#)
- 2020 Can we disregard the whole model? Omnibus non-inferiority testing for  $R^2$  in multivariable linear regression and  $\hat{\eta}^2$  in ANOVA, H Campbell and D Lakens, *The British Journal of Mathematical and Statistical Psychology*, (2020). [link](#)
- 2019 The world of research has gone berserk: modeling the consequences of requiring “greater statistical stringency” for scientific publication, H Campbell and P Gustafson, *The American Statistician*, special issue on Statistical Inference in the 21st Century, 73.sup1 (2019): 358 - 373. [link](#)
- 2019 Is it even rainier in North Vancouver? A non-parametric rank-based test for semicontinuous longitudinal data, H Campbell, *Journal of Applied Statistics*, 46:7 (2019): 1155 - 1176. [link](#)
- 2018 The validity and efficiency of hypothesis testing in observational studies with time-varying exposures, H Campbell and P Gustafson, *Observational Studies*, (2018). [link](#)
- 2018 Conditional equivalence testing: an alternative remedy to publication bias, H Campbell and P Gustafson, *PLoS ONE* 13(4): e0195145 (2018). [link](#)
- 2017 Twin data that made a big difference, and that deserve to be better-known and used in teaching, H Campbell, JA Hanley, *Journal of Statistical Education*, 25.3 (2017): 131-136. [link](#)
- 2014 The consequences of proportional-hazards based model selection, H Campbell and CB Dean, *Statistics in Medicine*, 33.6, (2014): 1042-1056. [link](#)
- 2012 Model-based clustering of longitudinal data: application to modeling disease course and gene expression trajectories, A Ciampi, H Campbell, A Dyachenko, B Rich, J McCusker, and MG Cole, *Communications in Statistics-Simulation and Computation*, 41.7 (2012): 992-1005. [link](#)

## Applied Publications

- 2020 The Zika Virus Individual Participant Data Consortium: a global initiative to estimate the effects of fetal exposure to Zika virus on adverse fetal, infant, and child health outcomes, Zika Virus Individual Participant Data Consortium, *Tropical Medicine and Infectious Disease*, 5(4), 152 (2020). [link](#)
- 2018 Comparison of hemoglobin A1c results based on at-home and in-lab dried blood spot sampling to routine venous blood sampling in-lab in adult patients with type 1 or type 2 diabetes, TG Elliott, KC Dooley, M Zhang, H Campbell, DJS Thompson, *Canadian Journal of Diabetes*, 42.4 (2018): 426-432.e1. [link](#)
- 2016 Sleep assessments for a mild traumatic brain injury trial in a military population, JM Walker, NT James, H Campbell, SH Wilson, S Churchill, LK Weaver, *Undersea and Hyperbaric Medicine Journal*, 43.5, (2016). [link](#)

- 2015 Comparison of reducing epicardial fat by exercise, diet or bariatric surgery weight loss strategies: A systematic review and meta-analysis, S Rabkin and H Campbell, *Obesity Reviews*, 16.5 (2015): 406-415. [link](#)
- 2014 Impact on diabetes care of access to an online patient portal, M Lau, H Campbell, T Tang, DJS Thompson, and T Elliott, *Canadian Journal of Diabetes*, 38.1 (2014): 17-21. [link](#)
- 2013 Modelling factors that affect the presence of larval mosquitoes (diptera: culicidae) in stormwater drainage systems to improve the efficacy of control programmes, MJ Jackson, JL Gow, MJ Evelyn, TJS McMahon, H Campbell, J Sheppard, TJ Howay, D Fladmark, A Thielman, *The Canadian Entomologist*, 145.06 (2013): 674-685. [link](#)
- 2012 An evaluation of the effectiveness of a commercial mechanical trap to reduce abundance of adult nuisance mosquito populations, MJ Jackson, JL Gow, MJ Evelyn, TJS McMahon, TJ Howay, H Campbell, J Blancard, and A Thielman, *Journal of the American Mosquito Control Association*, 28.4 (2012): 292-300. [link](#)

## Preprints

1. Adjusting for misclassification of a predictor in an individual participant data meta-analysis, VMT de Jong, H Campbell, L Maxwell, T Jaenisch, P Gustafson, T PA Debray, submitted to *Research Synthesis Methods*, 2021. [link](#)
2. Equivalence testing for standardized effects in linear regression, H Campbell, submitted to *Psychological Methods*, 2021. [link](#)
3. A non-inferiority test for R-squared with random regressors, H Campbell, 2020. [link](#)

## Ongoing Research

1. Rethinking participation rates - limitations and inaccurate representations of SARS-CoV-2 seroprevalence data in the first year of the COVID-19 pandemic; Olivia Pluss, Harlan Campbell, Laura Pezzi, Ivonne Morales, Yannik Roell, Talia M. Quandelacy, Molly M. Lamb, May Chu, Till Baernighausen, and Thomas Jaenisch
2. A fully Bayesian approach to estimating SARS-CoV-2 cumulative incidence and infection fatality rates from serosurveys; Justin J. Slater, Ayuish Bansal, Harlan Campbell, Paul Gustafson, Patrick E. Brown, Jeffrey S. Rosenthal
3. Systematic Review Reveals Lack of Causal Methodology Applied to Pooled Longitudinal Observational Infectious Disease Studies; Heather Hufstedler, Sabahat Rahman, Alexander M. Danzer, Hannah Goymann, Valentijn M.T. de Jong, Harlan Campbell, Paul Gustafson, Thomas P.A. Debray, Thomas Jaenisch, Lauren Maxwell, Ellicott C. Matthay, Till Bärnighausen

## Presentations

Determining the lethality of COVID19 - how can Bayesian methods help?

- The Therapeutics Initiative, Univ. of British Columbia (Invited Seminar), January 27, 2021
- The 2021 Annual Meeting of the Statistical Society of Canada, June 7, 2021

Bayesian adjustment for preferential testing in estimating infection fatality rates: Theory and methods as motivated by the COVID-19 pandemic., H Campbell; UBC Dept. of Statistics Seminar (Invited Seminar), Sept. 29 2020.

The consequences of checking for zero-inflation and overdispersion in the analysis of count data., H Campbell; The International Statistical Ecology Conference, Sydney (virtual), 2020.

If Journals Embraced Conditional Equivalence Testing, Would Research be Better?; Invited Seminar:

- METRICS, Stanford University, Oct. 18, 2019
- Therapeutics Initiative, University of British Columbia, June 26, 2019
- Department of Statistics and Actuarial Science, University of Waterloo, Jan. 30, 2019
- Mathematics Department, Reed College, Feb. 26, 2019
- Department of Mathematics and Statistics, University of Ottawa, Apr. 17, 2019

Can we disregard the whole model? Omnibus non-inferiority testing for  $R^2$  in multivariable linear regression and  $\hat{\eta}^2$  in ANOVA., H Campbell and D Lakens; The 47th Annual Meeting of the Statistical Society of Canada, Calgary, 2019.

Conditional equivalence testing, H Campbell, P Gustafson; The 46th Annual Meeting of the Statistical Society of Canada, Montreal, 2018. Invited talk.

What to make of non-inferiority and equivalence testing with a post-specified margin?, H Campbell; Joint Statistical Meetings (JSM), Vancouver, 2018.

A non-parametric rank based test for semicontinuous longitudinal data, H Campbell; The 44th Annual Meeting of the Statistical Society of Canada, St. Catharines, 2016.

The consequences of proportional-hazards based model selection, H Campbell, CB Dean; The Society for Clinical Trials 34th Annual Meeting, Boston, 2013.

## SKILLS

Communication - Fully bilingual in french and english.

Technology - Programming: proficient in R (JAGS, stan, shiny), SAS, and Matlab.  
Cloud Computing: experience with Compute Canada clusters.  
Data Management: experience with AdvantageEDC.

## TEACHING

July, 2021	<b>UBC Faculty of Pharmaceutical Sciences</b> –Guest Lecturer PHRM302 - “Challenges in COVID-19 systematic reviews”.
Jan - May, 2018	<b>UBC Dept. of Statistics</b> –Instructor Teaching STAT 306 for 145 undergraduates. <a href="#">link</a>
Sept, 2015 - May, 2016	<b>UBC Dept. of Statistics</b> –Teaching Assistant Teaching and grading labs for SCIE 300 and STAT 404.
Sept, 2009 - Dec, 2010	<b>SFU Dept. of Statistics and Actuarial Science</b> –Teaching Assistant Teaching and grading for various courses and statistics workshop.

## SERVICE & AWARDS

### Leadership:

Evaluation committee member for the 2021 Statistical Society of Canada's Biostatistics study competition. [link](#)

Organizer of the Constance van Eeden seminar (2017 and 2018). [link](#)

### Peer Review:

- |                                      |   |
|--------------------------------------|---|
| - The BMJ                            | - The American Statistician                         |
| - Nature Human Behaviour             | - The Journal of Applied Statistics                 |
| - Royal Society Open Science (3)     | - BMC Medical Research Methodology (2)              |
| - Canadian Journal of Public Health  | - Canadian Journal of Diabetes                      |
| - PLoS ONE                           | - Journal of Statistical Computation and Simulation |
| - Statistical Methods & Applications | - Obesity Reviews                                   |
| - Journal of Statistical Education   | - PLOS Neglected Tropical Diseases                  |
|                                      | -The Lancet Regional Health - Southeast Asia        |

### Awards:

2019 - Marshall Prize from UBC Statistics for “great distinction according to the professional and academic criteria.” [link](#)

2016 - Statistical Society of Canada Student Travel Award

2015-2019 - UBC Faculty of Science PhD Tuition Award