

# Harlan Campbell

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## Education

- Sept, 2015 - June, 2019 **University of British Columbia**, PhD - *Statistics*  
Supervisor: Prof Paul Gustafson, [link](#)  
Marshall Prize winner, [link](#)  
Awarded for "excellence in the discipline of statistics as demonstrated by strength in the development and application of statistical methodology."
- 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

## Professional experience

- July, 2023 - **Principal Scientist/Senior Methodologist** – PrecisionHEOR  
Overseeing research agenda and the development/dissemination of innovative methods research to support comparative effectiveness, cost-effectiveness questions involving clinical trials, patient reported outcomes, and real-world studies.
- July, 2023 - **Adjunct Professor** – University of British Columbia  
Pursuing research agenda and graduate student supervision in the Department of Statistics.
- July, 2019 - June, 2023 **Postdoctoral Research Fellow** – University of British Columbia  
Developed innovative theoretical and applied statistical methods with local, national and international collaborators, and funding from:  
- The ReCoDID project supported by the European Commission and the Canadian Institutes of Health Research, [link](#)  
- The ZIKV IPD Consortium supported by the World Health Organization, [link](#)
- Aug, 2020 - June, 2023 **Research Consultant** – PrecisionHEOR  
Provided expertise for evidence synthesis research to support the development of novel healthcare innovations, [link](#).
- July, 2012 - Dec, 2017 **Statistician** – EMMES Canada CRO  
Provided statistical services as a partner to clinicians/scientists.

## Research

### Statistics Publications (16 first author; 3 single author)

- 2023 Defining a credible interval is not always possible with “point-null” priors: A lesser-known correlate of the Jeffreys-Lindley paradox, H Campbell and P Gustafson, *Bayesian Analysis*, [link](#)
- 2023 Equivalence testing for linear regression, H Campbell, accepted for publication in *Psychological Methods*, [link](#)
- 2023 A Bayesian approach to estimating COVID-19 incidence and infection fatality rates, J Slater, A Bansal, H Campbell, P Gustafson, P Brown and J Rosenthal, *Biostatistics*, [link](#)
- 2022 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*, [link](#)
- 2022 Bayes factors and posterior estimation: Two sides of the very same coin, H Campbell and P Gustafson, *The American Statistician*, [link](#)
- 2022 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, V de Jong, T Debray, T Jaenisch and P Gustafson, *The Annals of Applied Statistics*, [link](#)
- 2022 A few things to consider when deciding whether or not to conduct underpowered research (letter to the editor), H Campbell, V de Jong, T Debray and P Gustafson, *Journal of Clinical Epidemiology*, [link](#)
- 2022 Adjusting for misclassification of a predictor in an individual participant data meta-analysis, V de Jong, H Campbell, L Maxwell, T Jaenisch, P Gustafson and T Debray, *Research Synthesis Methods*, [link](#)
- 2022 Limitations introduced by a low participation rate of SARS-CoV-2 seroprevalence data, O Pluss, H Campbell, L Pezzi, I Morales, Y Roell, T Quandelacy, M Lamb, M Chu, T Baernighausen and T Jaenisch, *The International Journal of Epidemiology*, [link](#)
- 2022 A comparison of alternative network meta-analysis methods in the presence of non-proportional hazards: A case study in first-line advanced or metastatic renal cell carcinoma, S Cope, K Chan, H Campbell, J Chen, J Borrill, J May, W Malcolm, S Branchoux, K Kupas and JP Jansen, *Value in Health*, [link](#)
- 2022 Systematic review reveals lack of causal methodology applied to pooled longitudinal observational infectious disease studies, H Hufstедler, S Rahman, A Danzer, H Goymann, V de Jong, H Campbell, P Gustafson, T Debray, T Jaenisch, L Maxwell, EC Matthay and T Bärnighausen, *Journal of Clinical Epidemiology*, [link](#)
- 2021 The consequences of checking for overdispersion and zero-inflation, H Campbell, *Methods in Ecology and Evolution*, [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*, [link](#)
- 2021 What to make of equivalence testing with a post-specified margin?,  
H Campbell and P Gustafson, *Meta-Psychology*, [link](#)
- 2021 Measurement error in individual participant data meta-analysis – A Bayesian framework for continuous outcome data,  
H Campbell, V de Jong, T Jaenisch, T Debray and P Gustafson, *Research Synthesis Methods*, [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 Matthay, S Rahman, V de Jong, H Campbell, P Gustafson, T Debray, T Jaenisch, L Maxwell and T Bärnighausen, *PLoS ONE*, [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, E Matthay, L Maxwell, S Rahman, T Debray, V de Jong, H Campbell, P Gustafson, T Jaenisch and T Bärnighausen, *BMJ Open*, [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*, [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*, [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*, [link](#)
- 2018 Conditional equivalence testing: An alternative remedy to publication bias,  
H Campbell and P Gustafson, *PLoS ONE*, [link](#)
- 2018 The validity and efficiency of hypothesis testing in observational studies with time-varying exposures,  
H Campbell and P Gustafson, *Observational Studies*, [link](#)
- 2017 Twin data that made a big difference, and that deserve to be better-known and used in teaching,  
H Campbell and JA Hanley, *Journal of Statistical Education*, [link](#)
- 2014 The consequences of proportional-hazards based model selection,  
H Campbell and CB Dean, *Statistics in Medicine*, [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*, [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, The Zika Virus Individual Participant Data Consortium, *Tropical Medicine and Infectious Disease*, [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, T Elliott, K Dooley, M Zhang, H Campbell and D Thompson, *Canadian Journal of Diabetes*, [link](#)
- 2016 Sleep assessments for a mild traumatic brain injury trial in a military population, J Walker, N James, H Campbell, S Wilson, S Churchill and L Weaver, *Undersea and Hyperbaric Medicine Journal*, [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*, [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*, [link](#)
- 2013 Modelling factors that affect the presence of larval mosquitoes (diptera: culicidae) in stormwater drainage systems to improve the efficacy of control programmes, M Jackson, J Gow, M Evelyn, T McMahon, H Campbell, J Sheppard, TJ Howay, D Fladmark and A Thielman, *The Canadian Entomologist*, [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*, [link](#)

## Invited Talks

Determining the lethality of COVID19

- ISI World Statistics Congress, Ottawa, ON, Jul 19, 2023
- School of Population and Global Health, McGill University, Feb 23, 2023
- The Therapeutics Initiative, University of British Columbia, Jan 27, 2021

Apples and oranges in the context of anchored indirect treatment comparisons – Is there more to it than effect modifiers?

- Spotlight session at ISPOR 2023, Boston, MA, May 10, 2023

Bayes Factors and Posterior Estimation: Two Sides of the Very Same Coin

- Aki Vehtari research group, Aalto University, Aug 25, 2022

Bayesian adjustment for preferential testing in estimating infection fatality rates

- Dept of Statistics, University of British Columbia, Sept 29 2020

If journals embraced conditional equivalence testing, would research be better?

- METRICS, Stanford University, Oct 18, 2019
- The Therapeutics Initiative, University of British Columbia, June 26, 2019
- Dept of Statistics and Actuarial Science, University of Waterloo, Jan 30, 2019
- Mathematics Dept, Reed College, Feb 26, 2019
- Dept of Mathematics and Statistics, University of Ottawa, Apr 17, 2019
- The Annual Meeting of the Statistical Society of Canada, Montreal, June 5, 2018.

## Skills & Service

### Communication and Technology:

- Fully bilingual in french and english.
- Programming proficiency in R (JAGS, stan, shiny), SAS, and Matlab.
- Cloud computing experience with Compute Canada clusters.
- Data management experience with electronic data capture software (AdvantageEDC).

### Leadership:

- Advisor on COVID-19 modelling strategies for the Joint Biosecurity Centre (UK Health Security Agency).
- Review member for the 2022 Mitacs Accelerate research proposals.
- Evaluation committee for the 2021 Statistical Society of Canada's Biostatistics competition.
- Organizer of the 2017 and 2018 Constance van Eeden seminars.

### Peer Review:

Reviewer for the journals:

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| - The BMJ                            | - The American Statistician   |
| - Statistics in Medicine             | - The Journal of Applied Statistics                                       |
| - Methods in Ecology and Evolution   | - BMC Medical Research Methodology (5)                                    |
| - Nature Communications              | - Canadian Journal of Diabetes  |
| - Nature Human Behaviour             | - J. of Statistical Computation and Simulation                            |
| - Royal Society Open Science (5)     | - Obesity Reviews   |
| - Canadian Journal of Public Health  | - PLOS Neglected Tropical Diseases  |
| - PLoS ONE                           | - The Lancet Regional Health - Southeast Asia                             |
| - Statistical Methods & Applications | - J. of Data Science, Statistics, and Visualisation                       |
| - Journal of Statistical Education   | - Epidemiology  |
| - Computational Statistics (2)       | - Journal of the Royal Statistical Society: Series C (Applied Statistics) |