

Corinne Aileen Riddell, PhD

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Current Position

Postdoctoral Researcher

Department of Epidemiology, Biostatistics, and Occupational Health
McGill University
1020 Pine Avenue West, Purvis Hall
Montréal, Quebec H3A 1A2
Canada

Area: Inequalities in health between black and white Americans

Supervisor: Dr. Jay Kaufman

Education

- 2011 - 2016 **PhD, Epidemiology**, McGill University
Thesis: Hospital variation and cesarean delivery: studies of contemporary practice patterns in Canada and the United States
Joint supervision: Dr. Jay Kaufman and Dr. Jennifer Hutcheon
- 2009 - 2011 **MSc Statistics, Biostatistics Option**, University of British Columbia
Thesis: An adaptive clinical trial design for a sensitive subgroup examined in the multiple sclerosis context
Joint supervision: Dr. John Petkau and Dr. Yinshan Zhao
Winner of the Marshall Prize for achieving great distinction in statistics
- 2004 - 2009 **BMath, Honours Statistics**, Co-operative Program, University of Waterloo
Graduated with Distinction
- 2004 - 2009 **BBA, Honours Business Administration**, Wilfrid Laurier University

Honours & Awards

Research Fellowships

- 2013 - 2015 Canadian Institutes of Health Research (CIHR) Doctoral Research Award \$70,000
- 2013 Health Disparities: Inter-generational Dynamics and Empirical Assessment Strategies Studentship Award \$6000
- 2011 McGill University Doctoral Fellowship \$6823
- 2011 Natural Sciences and Engineering Research Council (NSERC) Doctoral Research Award \$35,000

Merit-Based Awards

- 2016 RStudio Conference Diversity Award (RStudio) \$1100
- 2015 Centre on Population Dynamics Student Travel Award (McGill) \$200
- 2013 Graduate Research Enhancement and Travel Award (McGill) \$500
- 2011 Killam Graduate Teaching Assistant Award (UBC) \$1000
- 2011 Statistics Department Graduate Teaching Assistant Award (UBC) \$500
- 2011 Statistics Department Marshall Prize Winner (UBC) \$500
- 2010/11 European Committee for Treatment and Research in Multiple Sclerosis Travel Grants €1600

Publications

In Press

Riddell CA, Morrison KT, Kaufman JS, Harper S. Historical trends in the contribution of six major causes of death to the black-white life expectancy gap by US state. Accepted by *Health & Place*. JHAP_2017_614.

Riddell CA, Harper S, Cerdá M, Kaufman JS. Inequalities in violent death among men, by state, race, and firearms use. Accepted by *Annals of Internal Medicine*. M17-2976.

Mathur MB, Ding P, **Riddell CA**, VanderWeele TJ. Website and R package for computing e-values [Research Letter]. Accepted by *Epidemiology*. EDE17-0820.

Peer-Reviewed Journal Articles

11. **Riddell CA**, Hutcheon JA, Strumpf EC, Abenhaim HA, Kaufman JS. Inter-institutional variation in use of cesarean delivery for labour dystocia. *Journal of Obstetrics and Gynaecology Canada*. 2017; 39(11):988-95.

10. **Riddell CA**, Kaufman JS, Harper S. Trends in differences in US mortality rates between black and white infants [Research Letter]. *JAMA Pediatrics*. 2017; 171(9):911-13.

9. **Riddell CA**, Platt RW, Bodnar LM, Hutcheon JA. Classifying gestational weight gain trajectories using the SITAR growth model. *Paediatric and Perinatal Epidemiology*. 2017; 31(2):116-25.

8. Hutcheon JA, **Riddell CA**, Strumpf EC, Lee L, Harper S. Safety of labour and delivery following obstetrical services closures in small community hospitals in British Columbia, Canada. *Canadian Medical Association Journal*. 2017; 189(11):E431-36.

7. **Riddell CA**, Kaufman JS, Strumpf EC, Abenhaim HA, Hutcheon JA. Cervical dilation at time of cesarean delivery in nulliparous women: a population-based cohort study. *British Journal of Obstetrics and Gynaecology*. 2017; 124(11):1753-61.

6. **Riddell CA**, Hutcheon JA, Dahlgren LS. Differences in obstetric care among nulliparous First Nations and non-First Nations women in British Columbia, Canada. *Canadian Medical Association Journal*. 2015; 188(2): E36-43.

5. **Riddell CA**, Kaufman JS, Hutcheon JA, Strumpf EC, Teunissen PW, Abenhaim HA. Effect of uterine rupture on a hospital's future rate of vaginal birth after cesarean delivery. *Obstetrics & Gynecology*. 2014; 124(6): 1175-81.

4. Shrier I, Steele RJ, Verhagen E, Herbert R, **Riddell CA**, Kaufman JS. Beyond Intention-to-Treat: what is the right question? *Clinical Trials*. 2014; 11(1): 28-37.

3. **Riddell CA**, Zhao Y, Petkau J. An adaptive clinical trial design for a sensitive subgroup examined in the multiple sclerosis context. *Statistical Methods in Medical Research*. 2016; 25(4): 1330-45.

2. Walter SD, **Riddell CA**, Rabachini T, Villa LL, Franco EL. Accuracy of p53 Codon 72 Polymorphism Status Determined by Multiple Laboratory Methods: A Latent Class Model Analysis. *PLoS One*. 2013; 8(2): e56430.

1. **Riddell CA**, Zhao Y, Li DK, Petkau J, Riddehough A, Cutter GR, Traboulsee A. Evaluation of safety monitoring guidelines based on MRI lesion activity in multiple sclerosis. *Neurology*. 2011; 77(24): 2089-96.

Submitted

Kaufman JS, **Riddell CA**, Harper S. Black and white life expectancy differences in four US states: 1969-2013. Submitted to *American Journal of Public Health*.

In Preparation

Riddell CA, Ortiz J. Informing randomized control trials of respiratory syncytial virus vaccination during pregnancy to prevent recurrent childhood wheezing: a sample size analysis. Target Journal: *The Lancet Respiratory Medicine*.

Smits DW, Gorter JW, Rosenbaum P, Palisano R, Hanna S, **Riddell CA**, Voorman J, Van Wely, Ketelaar M. Developmental

trajectories of capability in mobility and self-care in children and adolescents with cerebral palsy. Target Journal: *The Lancet Child & Adolescent Health*.

Clinical Guidelines

Lee L, Dy J, Azzam H, Clinical Practice Obstetrics Committee, **Special Contributors**. Society of Obstetricians and Gynaecologists of Canada Clinical Practice Guideline No. 336. Management of Labour at Term in Healthy Women. *Journal of Obstetrics and Gynaecology Canada*. 2016; 38(9):843-64.

Presentations

Invited Presentations

Invited panelist. "Science and Skepticism: Critiquing Bad Research in an Anti-Science Era." Biomedical Ethics Unit, McGill University. March 19, 2018.

Fell D, Ortiz J, **Riddell CA**. Sample size estimation for RSV vaccine prevention of asthma/recurrent wheeze. Presented at the World Health Organization's RSV Technical Advisory Group Meeting, Málaga, Spain. November 28, 2017.

Riddell CA. Inequalities in violent death among men, by state, race, and firearms use. Manuscript presented at the Violence Prevention Research Program "Research in Progress" Meeting, University of California, Davis. November 3, 2017.

Conference Presentations

Riddell CA, Harper S, Cerdá M, Kaufman JS. Comparison of rates of firearm and non-firearm homicide and suicide in black and white non-Hispanic men by US state. Paper presented at the *Annual Meeting of the Population Association of America (PAA)*. Denver, Colorado. April 2018.

Riddell CA, Morrison KT, Harper S, Kaufman JS. Exploring how changes in cause of deaths have narrowed the black-white life expectancy gap in the United States. Working paper presented at the *4th Human Mortality Database Symposium 'Similarities and peculiarities on the way to longer life'*. Berlin, Germany. May 2017.

Riddell CA, Morrison KT, Harper S, Kaufman JS. An interactive exploration of how changes in cause of death have narrowed the black-white life expectancy gap in the United States. Keynote student speaker at the *McGill University Department of Epidemiology, Biostatistics, and Occupational Health Research Day*. Montreal, QC. April 2017.

Riddell CA, Kaufman JS, Strumpf E, Abenhaim HA, Hutcheon JA. The effect of uterine rupture on obstetrical management in U.S. hospitals. Paper presented at the *47th Annual Meeting of the Society for Epidemiologic Research*. Seattle, WA. June 2014.

Walter SD, Jiang H, **Riddell CA**. 100 years on: a new look at survivorship on the Titanic. Presentation at the *International Biometric Society: Eastern North American Region Annual Meeting*. Washington DC. April 2012.

Riddell CA, Zhao Y, Petkau AJ. An adaptive clinical trial design for a sensitive subgroup examined in the multiple sclerosis context. *Multiple Sclerosis*. October 2011; 17 (Suppl 10); p S35.

Conference Posters

Riddell CA, Hutcheon JA, Dahlgren LS. Differences in the use of obstetrical interventions and procedures by First Nations status in British Columbia. Poster presented at the *48th Annual Meeting of the Society for Epidemiologic Research*. Denver, CO. June 2015.

Riddell CA, Hutcheon JA, Kaufman JS. Variation in hospital-level management of labour dystocia across three Canadian provinces. Poster presented at the *28th Annual Meeting of the Society for Perinatal and Pediatric Epidemiologic Research*. Denver, CO. June 2015.

Riddell CA, Hutcheon JA, Dahlgren LS. Differences in the use of obstetrical interventions and procedures by First Nations status in British Columbia. Poster presented at the *3rd Annual Canadian National Perinatal Research Meeting*. Montebello,

QC. Feb 2015.

Riddell CA, Kaufman JS, Strumpf E, Abenheim HA, Hutcheon JA. The effect of uterine rupture on obstetrical management in U.S. hospitals. Poster presented at the *2nd Annual Canadian National Perinatal Research Meeting*. Banff, Alberta. February 2014.

Auclair MH, Gagnon R, Snyder J, Basso O, Shrim A, **Riddell CA**. Relationship between maternal RBC folate levels and fetal growth. *JOGC*. May 2014; 36(5): p S28.

Zhao Y, **Riddell CA**, Li D, Petkau AJ, Riddehough A, Cutter G, Traboulsee A. Evaluation of safety monitoring rules based on monthly contrast enhancing lesion activity in secondary progressive multiple sclerosis. *Multiple Sclerosis*. October 2010; 16 (Suppl 10); p S261.

Riddell CA, Zhao Y, Li D, Petkau AJ, Riddehough A, Cutter G, Traboulsee A. Predicting the occurrence of relapse in SPMS patients — are rules based on CEL counts effective? *Multiple Sclerosis*. October 2010; 16 (Suppl 10); p S111.

EJ Cormier, Y Liang, **CA Riddell**. Metabolism Contribution of bradykinin and des-Arg⁹-BK on angioedema pathophysiology. Poster presented at the *Annual Meeting of the Statistical Society of Canada*. Quebec, QC. May 2010.

Gorter JW, **Riddell CA**, Walter SD, Bartlett D, Russell D. Mobility and self-care in adolescents with cerebral palsy: parent and adolescent perspectives. *Developmental Medicine and Child Neurology*. September 2009; 51 (Suppl 5); p 35.

Teaching

Guest Lecturer, EPIB767 (McGill): EPIB 676: Mathematical Modeling of Infectious Diseases: 1 3-hour Workshop on Integrating Git and GitHub into a Data Analysis Workflow. February 22, 2018.

Head Teaching Assistant, PopDataViz2017 (McGill): Data Visualization Workshop with Kieran Healy to the Centre for Population Dynamics. December 13-15, 2017.

Guest Lecturer, EPIB602 (McGill): Foundations of Population Health: 1 Lecture on Data Manipulation and Data Visualization in R. Fall 2017.

Guest Lecturer, EPIB704 (McGill): Epidemiologic Analysis: 1 Lecture on Measures of Effect/Association. Fall 2013–2017.

Guest Lecturer, EPIB604 (McGill): Epidemiologic Analysis: 1 Lecture on Dose Response and Trend Analysis. Fall 2012–2017.

Guest Lecturer, EPIB704 (McGill): Epidemiologic Analysis: 1 Lecture on Measures of Occurrence. Fall 2013–2016.

Guest Lecturer, EPIB604 (McGill): Epidemiologic Analysis: 1 Lecture on Bootstrap and Simulation Studies. Fall 2016.

Guest Lecturer, EPIB609 (McGill): Seminar on Advanced Methods in Epidemiology: 1 Lecture on Multiple Imputation using Chained Equations. Fall 2014.

Guest Lecturer, Royal Victoria Hospital Residents teaching block: Limitations to before-and-after studies and ways forward. May 2014.

Guest Lecturer, EPIB672 (McGill): Estimating Causal Effects of Social Policy: An applied example of instrumental variable analysis. Spring 2013.

Course Module Instructor, STAT100 (University of British Columbia): Statistical Thinking: Instructor of the Probability Module. Winter 2011.

Teaching Assistant, STAT200 (University of British Columbia): Elementary Statistics for Applications. Fall 2009 & Winter 2010.

Teaching Assistant, MATH128 (University of Waterloo): Calculus for the Sciences. Fall 2005.

Research Experience

- Aug 2017 - Current **Contractor**, The Initiative for Vaccine Research, World Health Organization
- Calculated sample sizes required to detect effects on important public health outcomes for vaccines currently undergoing clinical efficacy trials to be used during pregnancy.
 - Created an online sample size calculator to be used by researchers to visualize the effect of maternal vaccination on distal childhood outcomes through intermediate reduction of infection during infancy.
- Mar 2016 - Jun 2016 **Research Assistant**, Department of Obstetrics & Gynaecology (UBC).
- Investigated differences in care between First Nations women and the general population within British Columbia (published in *CMAJ*, first author).
 - Applied novel methods to examine trajectories of maternal weight gain during pregnancy (published in *Paediatric and Perinatal Epidemiology*, first author).
- Feb 2010 - May 2011 **Research Assistant**, MS/MRI Research Group (UBC).
- Investigated safety rules and clinical trial design in multiple sclerosis.
 - Work based on this research is published in *Neurology* and *Statistical Methods for Medical Research* (both first author).
- Sep 2008 - Dec 2008 **Research Assistant Intern**, Clinical Epidemiology and Biostatistics (McMaster University).
- Performed a latent class analysis to estimate a patient's true genotype using the results of several genotyping methods (published in *PLoS ONE*, second author).
 - Used hierarchical models to explore changes in perception of mobility of children with cerebral palsy.
- Jan 2007 - Apr 2007 **Junior Statistician Intern**, Statistics Canada.
- Performed sample size calculations, determined sample allocation, and examined repeatability of measurements across multiple survey tools.

Short-term consulting

- Drafted summaries of studies and assessed measurement bias for a WHO task force evaluating burden of influenza disease during pregnancy. Winter 2014.
- Performed statistical analysis for a Maternal Fetal Medicine resident on her research project. Winter 2014.
- Assisted a physician/epidemiologist with R code development and substantial manuscript revision on a project using causal inference techniques. Aug 2012 - Aug 2013.
- Provided statistical consulting services to UBC graduate students as part of the Statistics Department Short Term Consulting Service. Jun 2010 - May 2011.

Press

- The Economist: <https://www.economist.com/blogs/graphicdetail/2017/07/daily-chart-5>
- The Washington Post: https://www.washingtonpost.com/news/in-theory/wp/2017/07/06/were-ceding-ground-in-the-war-against-infant-mortality/?utm_term=.abbdf5474145
- The Washington Times: http://www.washingtontimes.com/news/2017/jul/3/black-infant-mortality-rates-are-increasing-compar/?utm_source=RSS_Feed&utm_medium=RSS Washington
- The LA Times: <http://www.latimes.com/science/sciencenow/la-sci-sn-infant-mortality-race-20170703-story.html>
- The Boston Globe's STAT News: https://www.statnews.com/2017/07/03/infant-mortality-black/?s_campaign=stat:rss
- La Presse (Canada): <http://www.lapresse.ca/actualites/sante/201511/02/01-4916357-soins-obstetriques-moins-de-services-pour-les-femmes-autochtones.php>
- Global News (Canada): <https://globalnews.ca/news/2313389/first-nations-women-in-bc-do-not-receive-the-same-level-of-obstetric-care-study/>

Technical Skills

Software and Programming

Proficient R, R markdown, R shiny apps, Stata
Competent Git, GitHub, \LaTeX , QGIS
Familiar HTML, CSS, SAS

Analysis and Theory

- Epidemiological study design and theory, causal inference theory
- Linear models, generalized linear models, multi-level models
- Econometric approaches to causal inference (fixed effects regression, difference-in-differences designs)
- Data wrangling (`dplyr`), data visualization (`ggplot2`, `plotly`), interactive web applications (`shiny`)
- Miscellaneous skills: data linkage, multiple imputation, bootstrapping, statistical simulations

Professional Development

Peer Review

<i>Public Health</i> (2018)	<i>Paediatric & Perinatal Epidemiology</i> (2016)
<i>American Journal of Epidemiology</i> (2018)	<i>BMC Health Services Research</i> (2016)
<i>Epidemiology</i> (2015–2017)	<i>Journal of Clinical Epidemiology</i> (2014)
<i>BMJ Open</i> (2017)	<i>Canadian Journal of Public Health</i> (2014)
<i>PLOS One</i> (2017)	<i>Medical Care</i> (2013)
<i>Canadian Medical Association Journal</i> (2016, 2017)	

Workshops attended

Applied Spatial Analysis in Perinatal and Pediatric Epidemiology and Analyzing Multiple Exposures, SPER Advanced Methods Workshop. Denver. Jun 15, 2015.

Indigenous Health and Human Rights Conference, McGill University. Montréal. Feb 21, 2015.

Instrumental Variables, Statistical Horizons. Philadelphia. Nov 7-8, 2014.

Simulation Methods and Prediction Modeling, SPER Advanced Methods Workshop. Seattle. Jun 23, 2014.

Honouring Partnership: Promoting Engagement & Sensitivity in Aboriginal Health Research, McGill University. Montréal. Oct 4, 2013.

Biomarker Measurement Error and Propensity Scores, SPER Advanced Methods Workshop. Boston. Jun 17, 2013.

Bayesian Adaptive Methods for Clinical Trials, Joint Statistical Meeting. Vancouver. Aug 3, 2010.

Service

Organizer: R-Ladies Montreal: A chapter of a worldwide organization to promote gender diversity in the R community.

Workshop on When, Where, and Why to do a PhD/Post-Doc (McGill): Nov 2016

Coordinator for the Causal Reading Group (McGill): Coordinator: Sept 2013 - Mar 2014

Workshop on how to choose your supervisor (McGill): Nov 2013

Student Comprehensive Examination Representative (McGill): Sept 2012 - June 2013

Web archivist for Internal Introductory Statistics Meetings (UBC): 2011

Course monitor for Bayesian Inference for Surveys (Joint Statistical Meeting): Aug 2010

Assistant TA Trainer (UBC): Fall 2010