

Joel D. Barnes

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Work experience

[Statistics Canada](#)

Ottawa, Canada

Social Science Researcher

February 2020 – present

- Develop and maintain the [Population Health Model](#), a microsimulation model of a representative sample of Canadians that forecasts various health outcomes (e.g., dementia prevalence and incidence) from the present until 2050. This model has been used by the Government of Canada to inform policy decisions.
- Develop and maintain an unreleased R package that processes accelerometer-measured timeseries data from [a national survey](#) and classifies each minute of the day as physical activity, sedentary behaviour, sleep or non-wear time. Once released, this R package will be used by Canadian researchers to process their accelerometer data using the Statistics Canada method.
- Develop and maintain [an R Shiny web-based app](#) that joins and matches survey metadata from flat text files across multiple cycles of several national surveys, enabling Statistics Canada analysts and external researchers to find variables and plan analyses much more efficiently.
- [Modeled Covid-19 cases in nine Canadian provinces](#) on a weekly basis during the Covid-19 pandemic using compartment models via a co-authored R package, [EpiSim](#). Created scenarios that forecasted Covid-19 cases one year into the future. Results were used downstream in a Microsoft Azure pipeline to help the Government of Canada forecast personal protective equipment demand and make evidence-informed procurement decisions.

[CHEO Research Institute](#)

Ottawa, Canada

Knowledge and Data Analyst

September 2010 – December 2019

- Performed various modeling techniques on large datasets related to movement behaviours (physical activity, sedentary behavior, sleep) and health outcomes in children and youth. Analyses have been published in [70+ peer-reviewed publications](#) contributing to an [h-index](#) of 40, which is equivalent to the research output of a full professor.
- Served as a “full-stack” web developer that built/maintained five websites on LAMP (Linux, Apache, MySQL, PHP) stacks: [activehealthykids.org](#), [capl-eclp.ca](#), [haloresearch.ca](#), [outdoorplaycanada.ca](#), [sedentarybehaviour.org](#).
- Served as lead author on seven ParticipACTION Report Cards on Physical Activity for Children and Youth (2011-2016, 2018), a knowledge translation product that [has received one billion+ media impressions and that has an estimated collective ad value of \\$10 million+](#).

[Barnzilla Web Development](#)

Ottawa, Canada

Freelance web developer

September 2006 – present

- Develop, design and maintain custom websites for nine active clients on virtual private servers (LAMP stacks). Four of these clients are academic research networks for which custom code is actively deployed to handle all aspects of conference management (e.g., abstract submission and review, membership and conference registration, fee processing).
- Develop custom web-based dashboards that reshape, filter and visualize data based on user behavior (e.g., [Canada Grains Council Trade Data Online](#), [Covid-19 cases in Canada](#)).
- Have developed and designed 50+ websites for clients since 2006.

Skills

- 10+ years experience: R, PHP, SQL, JavaScript, HTML, CSS, Git, Linux server administration.
- 5+ years experience: R Shiny, Python, C++, cloud computing (Azure, Digital Ocean), Quarto.

Education

[University of Saskatchewan](#)

Saskatoon, Saskatchewan

MSc in Kinesiology

- Thesis: [Comparing health-related physical fitness and activity between old order Mennonite children in Ontario and rural children in Saskatchewan](#)

Sample research publication

Walsh JJ, Barnes JD et al. [Associations between 24 hour movement behaviours and global cognition in US children: a cross-sectional observational study](#). The Lancet Child & Adolescent Health. 2018;2(11):783-791.

- Featured in [The New York Times](#).