# Jessica Erin Stockdale: Curriculum Vitae

♥ Vancouver, BC

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### Research

My research interests include infectious disease modelling and genomic epidemiology. I develop mathematical and statistical methods for outbreak data analysis, to address questions across epidemiology and public health. In particular, I am interested in combining epidemiological and genomic information to understand disease transmission, using mathematical models and Bayesian statistics.

#### Experience

2022-Present	<ul> <li>Assistant Professor</li> <li>Research and teaching in Department of Ma</li> <li>Theme lead for Analytics and Data science a Pathogens, Pandemics and Society (PIPPS)</li> </ul>	Simon Fraser University athematics It The Pacific Institute on
2020-2 <b>022</b> 2018-2020	<ul> <li>enior Postdoctoral Fellow</li> <li>Simon Fraser University</li> <li>Research and teaching in Department of Mathematics, with Prof. Caroline Colijn and MAGPIE research group</li> <li>Secondment part-time to British Columbia Centre for Disease Control for rapid response modelling of COVID-19, Mar-Dec 2020</li> <li>Training graduate students, assistance with funding agency reports, co-organized 'EpiCoronaHack' COVID-19 hackathon</li> <li>Co-designed and taught course on genomics and disease at PIMS 2019 Diversity in Math undergraduate women's summer school</li> </ul>	
2020-present	<ul> <li>Instructor, Summer Institute in Statistics University of Washington and Modeling in Infectious Diseases</li> <li>Designed and taught annual 3-day course 'Reconstructing Transmission with Genomic Data' alongside Prof. Caroline Colijn</li> <li>Aimed at students, academics, and professionals, and presented through lectures and interactive tutorials</li> </ul>	
2018	<ul> <li>Research Assistant, Centre for People, Not</li> <li>Work and Organizational Practice <ul> <li>Support in qualitative and quantitative analy research projects, including evaluation of UI volunteering scheme</li> </ul> </li> </ul>	<b>tingham Trent University</b> ysis across centre K government 50+
Education		

- 2014-2018 PhD Statistics, School of Mathematical Sciences, University of Nottingham Thesis: "Bayesian computational methods for stochastic epidemics"
- 2010-2014 MMath Master of Mathematics, 1<sup>st</sup> Class Hons., University of Nottingham Thesis: "Statistical analysis of mass spectrometry data for melanoma diagnoses"

### Collaborations

BCCDC (2020-22)	<ul> <li>Secondment for COVID-19 rapid response modelling. Our team built the primary statistical model used by BCCDC and the Public Health Agency of Canada (PHAC) during 2020-21 for COVID-19 transmission modelling and public dissemination. Co-led work evaluating transmission of COVID-19 in BC long-term care.</li> <li>Ongoing modelling including estimating the impact of SARS-</li> </ul>	
	CoV-2 vaccine escape strains	
Fraser Health (2019-20)	Modelling transmission dynamics of Carbapenemase-producing organisms	
ATB Financial (2022)	<b>B Financial (2022)</b> Consultancy on COVID-19 and future pandemic preparedne models for workplace transmission.	
Health Canada (2022-23)	Cost effectiveness of SARS-CoV-2 rapid testing in long term care, with researchers from the Institute of Health Economics.	

## Undergraduate Teaching

**Simon Fraser University**. Instructor: Mathematical Modelling of Infectious Diseases (2023), Calculus II (2020) and 'Foundations of Analytical and Quantitative Reasoning' (2019).

University of Nottingham. Teaching assistant: Probability I & II, Statistics I & II (2014-2018).

## Publications

**Stockdale JE**, Liu P, Colijn C. The potential of genomics for infectious disease forecasting. *Nature Microbiology 7.11 (2022)* <u>10.1038/s41564-022-01233-6</u>

**Stockdale JE**, Anderson SC, Edwards AM, Iyaniwura SA, Mulberry N, Otterstatter MC, Janjua NZ, Coombs D, Colijn C, Irvine MA. Quantifying transmissibility of SARS-CoV-2 and impact of intervention within long-term healthcare facilities. *Royal Society Open Science 9.1 (2022)* <u>10.1098/rsos.211710</u>

**Stockdale JE**, Susvitasari K, Tupper P, Sobkowiak B, Mulberry N, Gonçalves da Silva A, Watt AE, Sherry N, Minko C, Howden BP, Lane CR, Colijn C. Genomic epidemiology offers high resolution estimates of serial intervals for COVID-19. *medRxiv preprint (2022)* <u>10.1101/2022.02.23.22271355</u>

**Stockdale JE**, Doig R, Min J, Mulberry N, Wang L, Elliott LT, Colijn C. Long time frames to detect the impact of changing COVID-19 measures, Canada, March to July 2020. *Eurosurveillance 26.40 (2021)* <u>10.2807/1560-7917.ES.2021.26.40.2001204</u>

**Stockdale JE**, Kypraios T, O'Neill PD. Pair-based likelihood approximations for stochastic epidemic models. *Biostatistics 22.3 (2021)* <u>10.1093/biostatistics/kxz053</u>

Anderson SC, Mulberry N, Edwards AM, **Stockdale JE**, Iyaniwura SA, Falcao RC, Otterstatter MC, Janjua NZ, Coombs D, Colijn C. How much leeway is there to relax COVID-19 control measures? *Epidemics 35 (2021)* <u>10.1016/j.epidem.2021.100453</u>

Tindale LC\*, **Stockdale JE\***, Coombe M, Garlock ES, Lau WYV, Saraswat M, Zhang L, Chen D, Wallinga J, Colijn C. Evidence for transmission of COVID-19 prior to symptom onset. *eLife 9* (2020) <u>10.7554/eLife.57149</u>\*joint first author

Xu Y, **Stockdale JE**, Naidu V, Hatherell H, Stimson J, Stagg HR, Abubakar I, Colijn C. Transmission analysis of a large tuberculosis outbreak in London: a mathematical modelling study using genomic data. *Microbial Genomics 6.11 (2020)* <u>10.1099/mgen.0.000450</u>

Anderson SC, Edwards AM, Yerlanov M, Mulberry N, **Stockdale JE**, Iyaniwura SA, Falcao RC, Otterstatter MC, Irvine MA, Janjua NZ, Coombs D, Colijn C. Quantifying the impact of COVID-19 control measures using a Bayesian model of physical distancing. *PLoS computational biology 16.12 (2020)* <u>10.1371/journal.pcbi.1008274</u>

McCarthy Z, Athar S, Alavinejad M, Chow C, Moyles I, Nah K, Kong JD, Agrawal N, Jaber A, Keane L, Liu S, Nahirniak M, St Jean D, Romanescu R, **Stockdale JE**, Seet BT, Coudeville L, Thommes E, Taurel AF, Lee J, Shin T, Arino J, Heffernan J, Chit A, Wu J. Quantifying the annual incidence and underestimation of seasonal influenza: A modelling approach. *Theoretical Biology and Medical Modelling 17.11 (2020)* <u>10.1186/s12976-020-00129-4</u>

**Stockdale JE**, Kypraios T, O'Neill PD. Modelling and Bayesian analysis of the Abakaliki Smallpox Data. *Epidemics 19: 13-23. (2017)* <u>10.1016/j.epidem.2016.11.005</u>

**Stockdale JE**, Susvitasari K, Tupper P, Sobkowiak B, Mulberry N, Gonçalves da Silva A, Watt AE, Sherry N, Minko C, Howden BP, Lane CR, Colijn C. Genomic epidemiology offers high resolution estimates of serial intervals for COVID-19. *Preprint: medrXiv (2022)* <u>10.1101/2021.12.18.21268002</u>

Are EB, Song Y, **Stockdale JE**, Tupper P, Colijn C. COVID-19 endgame: from pandemic to endemic? Vaccination, reopening and evolution in a well-vaccinated population. *Preprint: medrXiv* (2021) <u>10.1101/2021.12.18.21268002</u>

PhD thesis: **Stockdale JE**. Bayesian computational methods for stochastic epidemics. *(2019)* <u>http://eprints.nottingham.ac.uk/id/eprint/56483</u>

# Conference & Invited Talks

"Using genomic epidemiology to reconstruct transmission in infectious disease outbreaks: an application to serial intervals of COVID-19" Invited speaker, Simon Fraser University Department of Mathematics, June 2022

"A genomics approach to serial intervals in COVID-19 transmission clusters" 29th International Dynamics & Evolution of Human Viruses conference, University of California San Diego, June 2022 "Genomic epidemiology for estimation of serial intervals in COVID-19 transmission clusters" Invited speaker, Banff International Research Station workshop "Preparing for the next pandemic", University of British Columbia Okanagan, June 2022

"Modelling the COVID-19 pandemic in British Columbia" Plenary speaker, Biennial Meeting of SIAM Pacific Northwest Section, Washington State University Vancouver, May 2022

"Genomic epidemiology offers high resolution estimates of serial intervals for COVID-19" Invited speaker, Statistics and Probability seminar series, University of Nottingham, May 2022

"How long does it take to detect a change in COVID-19 control measures?" Invited speaker, Society for Mathematical Biology Annual Meeting, Online, Aug 2020

"How long does it take to detect a change in COVID-19 control measures?" *Elliott Lab journal club, Simon Fraser University, Jul 2020* 

"Pair-based likelihood approximations for stochastic epidemic models" Invited speaker, Mathematical Biology seminar series, University of British Columbia, Nov 2019

"Modelling and genomics to identify dangerous Streptococcus pneumoniae strains" Society for Mathematical Biology Annual Meeting, University of Montreal, Jul 2019

"Approximation Methods for Stochastic Epidemic Modelling" Postdoctoral Research Day, Simon Fraser University, Mar 2019

"Bayesian estimation for transmission potential of smallpox" and poster "Likelihood approximation methods for stochastic epidemic models" European Meeting of Statisticians, University of Helsinki, Jul 2017

"Modelling and Bayesian analysis for the Abakaliki smallpox data" Stochastic Epidemic Models with Structured Populations, University of Nottingham, Jul 2017

"Modelling and Bayesian Inference for the Abakaliki Smallpox Data" 38th Research Students' Conference in Probability and Statistics, University of Leeds, Jul 2015

# **Outreach events**

Career Development Panel Discussion, Mathematics for Public Health Festival (MfPHest). Fields Institute, University of Toronto, Oct 2022

"COVID data, models and challenges: Where are we headed?" public lecture. *Café Scientifique*, Simon Fraser University, Nov 2020

"Fighting infectious diseases with math and genomics" Undergraduate Women's Summer School. *Pacific Institute for the Mathematical Sciences: Diversity in Mathematics,* Simon Fraser University, July 2019

# Research Funding & Awards

- Funding to attend Fields-CQAM Industrial Problem-Solving Workshop, Fields Institute, Toronto (2019)
- 1<sup>st</sup> place lightning talk, *Simon Fraser University Postdoctoral Research Day (2019)*
- Best poster award, European Meeting of Statisticians (2017)
- UK Engineering and Physical Sciences Research Council funding for doctoral study through Doctoral Training Partnership EP/M506588/1 (2014-2017)
- University of Nottingham Work Experience Grant, for undergraduate research internship (2013)
- Nuffield Foundation undergraduate research bursary, University of Nottingham (2012)
- Eliahou Dangoor undergraduate STEM scholarship, University of Nottingham (2011)