# Publication List
### (Research Group Members Shown in Italics)

## Submitted Articles

86. ***M. Ward***, **R. Deardon**, L. Deeth "A framework for incorporating behavioural change into individual-level spatial epidemic models" submitted to the *Canadian Journal of Statistics*.
http://arxiv.org/abs/2308.00815

85. **M. *Kamso***; J. Pardo, S. Whittle, R. Buchbinder, G. Wells, V. Glennon, P. Tugwell, **R. Deardon**, T. Sajobi, G. Tomlinson, J. Elliot, S. Kelly & G. Hazlewood. "A screening approach combining crowd-sourcing and automation facilitated the identification and classification of randomized controlled trials in a living systematic review" submitted to the *Journal of Clinical Epidemiology*.

84. ***M. Mahsin***, W. Almutiry & **R. Deardon** "Spatial modeling of infectious disease transmission using continuous time geographically-dependent individual-level models" submitted to *Statistics in Medicine*.

83. ***L. Amiri***, M. Torabi & **R. Deardon** "Spatial modelling of infectious diseases with covariate measurement error" submitted to *Journal of the Royal Statistical Society: Series C* (revision requested).

82. ***T. Akter*** & **R. Deardon** "Comparison of variable screening methods in infectious disease transmission models" submitted to *Spatial and Spatiotemporal Epidemiology* (revision requested).

81. ***M. Pasha***, **R. Deardon** & A. Rahim "Multi-response and multi-cause process monitoring by applying proportional hazards models in the optimal design of $T^2$ control charts" submitted to *Computers & Industrial Engineering*.

80. ***M. Pasha***, **R. Deardon** & A. Rahim "Multi-response process monitoring with T2 control charts under multiple assignable causes" submitted to *Quality Technology and Quantitative Management*.

79. M. Biesheuvel, ***C. Ward***, P. Penterman, E. van Engelen, G. Schaik, **R. Deardon** & H. Barkema "Within-herd transmission of *Mycoplasma bovis* infection in 20 Dutch dairy herds" submitted to *Journal of Dairy Science* (revision requested).

78. H. M. Qureshi, K. M. Fiest, J. Gratrix, E. L. Franco, P. Smyczek, R. Read, A. Afzal, **R. Deardon**, A. Kassam, M. M. Fidler-Benaoudia "Investigating the risk of primary invasive cancer among individuals with a history of bacterial sexually transmitted infections: a population-based study in Alberta, Canada"

## Accepted/In Press

77. ***C. Ward***, **R. Deardon** & A. Schmidt "Bayesian modelling of dynamic behavioural change during an epidemic" to appear in *Infectious Disease Modelling*.
https://arxiv.org/pdf/2211.00122.pdf

## Published Articles

76. ***L. Amiri***, M. Torabi & **R. Deardon** (2023) "Analyzing COVID-19 data in the Canadian Province of Manitoba: A new approach" in *Spatial Statistics*, 55:100729. doi: 10.1016/j.spasta.2023.100729.

75. ***M. Pasha***, **R. Deardon** & A. Rahim (2023) "A study on inspection schemes in optimal design of control charts for deteriorating processes" to appear in *Quality and Reliability Engineering International*, 39(3), 732-751.

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74. ***M. Mahsin***, **R. Deardon** & P. Brown (2022) "Geographically-dependent individual-level models for infectious diseases transmission" in *Biostatistics*, 23(1), 1-17. https://doi.org/10.1093/biostatistics/kxaa009

73. ***J. Angevaare***, Z. Feng & **R. Deardon** (2022) "Pathogen.jl: Infectious disease transmission network modelling with Julia" in *Journal of Statistical Software*, 104(4), 1?30.

72. ***G. Pokharel*** & **R. Deardon** (2022) "Emulation-based inference for spatial infectious disease transmission models incorporating event time uncertainty" in the *Scandinavian Journal of Statistics*, 49(1), 455-479. http://doi.org/10.1111/sjos.12523

71. ***M. Ward***, L. Deeth & **R. Deardon** (2022) "Cluster-aggretion-disaggregation methods for spatial individual level models of infectious disease transmission" in *Spatial & Spatiotemporal Epidemiology*, 41: 100497. https://doi.org/10.1016/j.sste.2022.100497

70. ***S. A. Naqvi***, M. King, T. DeVries, H. Barkema & **R. Deardon** (2022) "Data considerations for developing deep learning models for dairy applications" in *Computers and Electronics in Agriculture*, 196: 106895. https://doi.org/10.1016/j.compag.2022.106895

69. ***S. A. Naqvi***, M. King, R. Matson, T. DeVries, **R. Deardon** & H. Barkema (2022) "Mastitis detection with recurrent neural networks in farms using automated milking systems" in *Computers and Electronics in Agriculture*, 192: 106618. https://doi.org/10.1016/j.compag.2021.106618

68. ***B. Jafari*** & **R. Deardon** (2022) "Bias and Bias-Correction for Individual-Level Models of Infectious Disease" in *Spatial & Spatiotemporal Epidemiology*, 43, 100524.

67. J. Di Francesco, G.P.S. Kwong, **R. Deardon**, S. L. Checkley, G. F. Mastromonaco, F. Mavrot, L. Leclerc & S. Kutz (2022) "Intrinsic and extrinsic factors associated with increased qiviut cortisol in wild muskoxen (Ovibos moschatus)" in *Conservation Physiology*, 10(1), coab103. https://doi.org/10.1093/conphys/coab103

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66. ***W. Almutiry***, ***V. Warriyar*** & **R. Deardon** (2021) "Continuous-time individual-level models of infectious disease: EpiILMCT" in the *Journal of Statistical Software*, 98(10), 1-44. https://www.jstatsoft.org/article/view/v098i10

65. ***L. Amiri***, M. Torabi, **R. Deardon** & M. Pickles (2021). "Spatial modeling of individual-level infectious disease transmission: tuberculosis data in Manitoba, Canada" in *Statistics in Medicine*, 40(7), 1678-1704. https://doi.org/10.1002/sim.8863

64. ***J. Angevaare***, Z. Feng & **R. Deardon** (2021) "Inference of latent event times and transmission network in individual level infectious disease models" in *Spatial & Spatiotemporal Epidemiology*, 37, 100410. https://doi.org/10.1016/j.sste.2021.100410

63. ***W. Almutiry*** & **R. Deardon** (2021) "Contact network uncertainty in individual level models of infectious disease transmission" in *Statistical Communications in Infectious Diseases*, 13(1). DOI: https://doi.org/10.1515/scid-2019-0012

62. ***Z. Liu***, **R. Deardon**, Y. Fu, ***T. Ferdous***, T. Ware & Q. Cheng (2021)"Estimating parameters of two-level individual-level models of the COVID-19 epidemic using ensemble learning classifiers" in *Frontiers in Physics*, 8(11), Article 602722. doi: 10.3389/fphy.2020.602722

61. ***A. Novaes de Amorim***, V. Saini & **R. Deardon** (2021) "A stacked ensemble method for forecasting influenza-like illness visit volumes at emergency departments" in *PLOS One*, 16(3): e0241725. https://doi.org/10.1371/journal.pone.0241725

60. S. Andres-Lasheras, R. Ha, R. Zaheer, C. Lee, C. Booker, C. Dorin, J. Van Donkersgoed, **R. Deardon**, S. Gow, S. Hannon, S. Hendrick, M. Anholt & T. McAllister (2021) "Prevalence and risk factors associated with antimicrobial resistance in bacteria related to bovine respiratory disease - A broad cross-sectional study of beef cattle at entry into Canadian feedlots" in *Frontiers in Veterinary Science*, 8, 710. doi: 10.3389/fvets.2021.692646

59. B. Singh, ***M. Lowerison***, R. Lewinson, I. Vallerand, **R. Deardon**, J. Gill, B. Singh & H. Barkema (2021) "Public health interventions slowed but did not halt the spread of COVID-19 in India" in *Transboundary and Emerging Diseases*, 68(4), 2171-2187. https://doi.org/10.1111/tbed.13868

58. C. Doolan, T. Louie, C. Lata, O. Larios, W. Stokes, J. Kim, K. Brown, P. Beck, **R. Deardon** & D. Pillai (2021) "Latent class analysis for the diagnosis of Clostridioides difficile infection" in *Clinical Infectious Diseases*, 73(9):e2673-e2679. https://doi.org/10.1093/cid/ciaa1553

57. B. Singh, M. Ward, ***M. Lowerison***, R. Lewinson, I. Vallerand, **R. Deardon**, J. Gill, B. Singh & H. Barkema (2021) "Meta-analysis and adjusted estimation of COVID-19 case fatality risk in India and its association with the underlying comorbidities" in *One Health*, 13:100283. https://doi.org/10.1016/j.onehlt.2021.100283.

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56. ***W. Almutiry*** & **R. Deardon** (2020) "Incorporating contact network uncertainty in individual level models of infectious disease using approximate Bayesian computation" in *The International Journal of Biostatistics*, 16(1), Article 20170092. DOI: https://doi.org/10.1515/ijb-2017-0092

55. ***V. Warriyar***, ***W. Almutiry*** & **R. Deardon** (2020) "Individual level modelling of infectious disease data: EpiILM" in *The R Journal* 12(1), 199-217.

54. G. Hazelwood, ***G. Pokharel***, **R. Deardon**, D. Marshall, C. Bombardier, G. Tomlinson, C. Ma, C. Seow, R. Panaccione & G. Kaplan (2020) "Patient preferences for maintenance therapy in Crohn's disease: a discrete-choice experiment" in *PLoS One*, 15(1):e0227635.

53. G.P.S. Kwong, **R. Deardon**, ***S. Hunt*** & M. Guerin (2020) "Bayesian optimal design of agricultural infectious disease transmission experiments" available online in *Statistical Communications in Infectious Diseases*, 12(1). https://doi.org/10.1515/scid-2018-0005

52. ***R. Romanescu*** & **R. Deardon** (2020) "Implementation of power law network models of epidemic surveillance data for better evaluation of outbreak detection alarms" in *Statistical Communications in Infectious Diseases*, 12(1). https://doi.org/10.1515/scid-2018-0004.

51. D. Nobrega, ***S. A. Naqvi***, S. Dufour, **R. Deardon**, J. Kastelic, J. de Buck & H. Barkema (2020) "Critically important antimicrobials are not needed to treat non-severe clinical mastitis in lactating dairy cows: results from a network meta-analysis" in the *Journal of Dairy Science*, 103(11), 10585-10603. https://doi.org/10.3168/jds.2020-18365

50. ***G. Pokharel***, **R. Deardon**, S. Johnson, G. Tomlinson, P. Hull, G. Hazelwood (2020) "Effectiveness of initial methotrexate-based treatment approaches in early rheumatoid arthritis: An elicitation of rheumatologists' beliefs" in *Rheumatology*, keaa803. https://doi.org/10.1093/rheumatology/keaa803

49. A. Ogilvy, S. Collins, T. Tuokko, M. Hilts, **R. Deardon**, W. Hare & A. Jirasek (2020) "Optimization of solid tank design for fan-beam optical CT based 3D radiation dosimetry" in *Physics in Medicine & Biology*. 65, 245012. https://doi.org/10.1088/1361-6560/abbf98

48. ***C. Augusta***, **R. Deardon** & G. Taylor (2019) "Deep learning for supervised classification of spatial epidemics" in *Spatial & Spatiotemporal Epidemiology*, 29, 187-198.

47. ***M. Ward***, ***A. Stanley***, L. Deeth **R. Deardon**, Z. Feng & L. Trotz-Williams (2019) "Methods for detecting seasonal influenza epidemics using a school absenteeism surveillance system" in *BMC Public Health*, 19, Article: 1232.

46. ***C. Augusta***, G. Taylor & **R. Deardon** (2019) "Dynamic contact networks of swine movement in Manitoba, Canada: characterization and implications for infectious disease spread" in *Trans-boundary and Emerging Diseases*, 66(6), 1910 - 1919. DOI: https://doi.org/10.1111/tbed.13220.

45. ***G. Pokharel***, **R. Deardon**, C. Barnabe, V. Bykerk, S. Bartlett, L. Bessette, G. Boire, C. Hitchon, E. Keystone, J. Pope, O. Schieer, D. Tin, C.Thorne & G. Hazelwood (2019) "Joint estimation of remission and response for methotrexate-based DMARD options in rheumatoid arthritis: A bivariate network meta-analysis" in *ACR Open Rheumatology*, 1(8), 471-479. https://onlinelibrary.wiley.com/doi/epdf/10.1002/acr2.11052.

44. ***M. Lowerison***, C. Josephson, N. Jette, T. Sajobi, S. Patten, T. Williamson, **R. Deardon**, H. Barkema, & S. Wiebe (2019) "Association of levels of specialized care with risk of premature mortality in patients with epilepsy" in *JAMA Neurology*, 76(11), 1352-1358. DOI: https://doi.org/10.1001/jamaneurol.2019.2268

43. S. Coward, F. Clement, E. Benchimol, C. Bernstein, J. Antonio Avina-Zubieta, A. Bitton, M. Carroll, G. Hazelwood, K. Jacobson, S. Jelinski, **R. Deardon**, J. Jones, M. Ellen Kuenzig, D. Leddin, K. McBrien, S. Murphy, G. Nguyen, A. Otley, R. Pannaccione, A. Rezaie, G. Rosenfeld, J. Pena-Sanchez, H. Singh, L. Targownik, G. Kaplan (2019) "Past and future burden of inflammatory bowel diseases based on modeling of population-based data" in *Gastroenterology*, 156(5), 1345-1353.

42. J. Cheaveau, D. Marasinghe, S. Akakpo, **R. Deardon**, C. Naugler, A. Chin, D. R. Pillai (2019) "The impact of malaria on liver enzymes: a retrospective cohort study (2010-2017)" in *Open Forum Infectious Diseases*, 6(6).

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41. T. Petukhova, D. Ojkic, B. McEwen, **R. Deardon** & Z. Poljak (2018) "Assessment of ARIMA, GLARMA and random forest models for predicting Influenza A virus frequency in swine in Ontario, Canada" in *PLoS One*, 13(6): e0198313.

40. ***G. Pokharel*** & **R. Deardon** (2018) "Spatially informed back-calculation for spatio-temporal infectious disease models" in *Statistical Communications in Infectious Diseases*, Vol. 10(1), Article 2.

39. M. Lipson, **R. Deardon**, N. Switzer, C. DeGara, C. Ball & S. Grondin (2018) "Practice and attitudes regarding double gloving among staff surgeons and surgical trainees" in the *Canadian Journal of Surgery*, 61(4), 244-250.

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38. D. Toms, **R. Deardon** & M. Ungrin (2017) "Climbing the mountain: Experimental design for efficient optimization of stem cell bioprocessing" in the *Journal of Biological Engineering*, Vol. 11, No. 1

37. ***R. Romanescu*** & **R. Deardon** (2017) "Fast inference for network models of infectious disease spread" in the *Scandinavian Journal of Statistics*, 44(3), 666-683 (DOI: 10.1111/sjos.12270).

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36. ***G. Pokharel*** & **R. Deardon** (2016) "Gaussian process emulators for spatial models of infectious disease" in the *Canadian Journal of Statistics*, 44(4), 480-501.

35. ***R. Romanescu*** & **R. Deardon** (2016) "Modelling two strains of disease via aggregate-level infectivity curves" in the *Journal of Mathematical Biology*, 72(5), 1195-1224.

34. ***L. Deeth*** & **R. Deardon** (2016) "Spatial data aggregation for spatio-temporal individual-level models of infectious disease transmission" in *Spatial & Spatio-temporal Epidemiology*, 17, 95-104.

33. ***R. Malik***, **R. Deardon** & ***G.P.S. Kwong*** (2016) "Parameterizing spatial models of infectious disease spread using sampling-based likelihood approximations" in *PLoS One*, 11(1): e0146253. doi: 10.1371/journal.pone.0146253.

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32. ***L. Deeth***, **R. Deardon** & D. Gillis (2015) "Model choice using the Deviance Information Criterion for latent conditional individual-level models of infectious disease spread" in *Epidemiologic Methods*, 4(1), 47-68.

31. **R. Deardon**, ***X. Fang*** & ***G.P.S. Kwong*** (2015) "Statistical modelling of spatio-temporal infectious disease tranmission" in *Analyzing and Modeling Spatial and Temporal Dynamics of Infectious Diseases*, 211-232, John Wiley & Sons. (Ed: D. Chen, B. Moulin, J. Wu).

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30. T. J. McKinley, J. Ross, **R. Deardon** & A. Cook (2014) "Simulation-based Bayesian inference for epidemic models" in *Computational Statistics & Data Analysis*, 71, 434-447.

29. ***R. Malik***, **R. Deardon**, ***G.P.S. Kwong*** & B. J. Cowling (2014) "Individual-level modeling of the spread of influenza within households" in *Journal of Applied Statistics*, 41(7), 1578-1592.

28. ***G. Pokharel*** & **R. Deardon** (2014) "Supervised learning and prediction of spatial epidemics" in *Spatial & Spatio-Temporal Epidemiology*, 11, 59-77.

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27. ***L. Deeth*** & **R. Deardon** (2013) "Latent conditional individual level models for infectious disease modelling" in *The International Journal of Biostatistics*, 9(1), 75-93.

26. ***S. Subedi***, Z. Feng, **R. Deardon** & F. Schenkel (2013) "SNP selection for predicting a quantitative trait" in the *Journal of Applied Statistics*, 40(3), 600-613.

25. ***N. Bifolchi***, **R. Deardon** & Z. Feng (2013) "Spatial approximations of network-based individual level infectious disease models" in *Spatial & Spatio-temporal Epidemiology* , 6, 59-70.

24. T. Agvar, **R. Deardon** & J. Fryxyll (2013) "An empirically parameterized individual based model of animal movement, perception and memory" in *Ecological Modelling*, 251: 158-172.

23. K. Bottoms, Z. Poljak, C. Dewey, **R. Deardon**, D. Holtkamp & R. Friendship (2013) "Evaluation of external biosecurity practices on southern Ontario farms" in *Preventive Veterinary Medicine*, 109(1-2):58-68.

22. ***G.P.S. Kwong***, Z. Poljak, **R. Deardon** & C. Dewey (2013) "Bayesian analysis of risk factors for infection with a genotype of porcine reproductive and respiratory syndrome virus in Ontario swine herds using monitoring data" in *Preventive Veterinary Medicine*, 110(3-4):405-17.

21. K. Bottoms, Z. Poljak, B. Friendship, J. Alsop, **R. Deardon** & C. Dewey (2013) "An assessment of external biosecurity on southern Ontario swine farms, and its application to surveillance on a geographic level" in the *Canadian Journal of Veterinary Research*, 77(4), 241 - 253.

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20. ***I.Vrbik,*** **R. Deardon**, Z. Feng, ***A. Gardner*** & J. Braun (2012) "Using individual-level models to model the spatio-temporal dynamics of combustion" in *Bayesian Analysis*, 7(3), 615 – 638. (Funded by: NSERC).

19. ***G.P.S. Kwong*** & **R. Deardon** (2012) "Linearized forms of individual-level models for large-scale spatial infectious disease systems" in *Bulletin of Mathematical Biology*, 74(8), 1912 – 37. (Funded by: NSERC, OMAFRA).

18. Y. Hosseinkashi, S. Chenouri, C. Small & **R. Deardon** (2012) "A Stochastic Graph Process for Epidemic Modelling" in *Canadian Journal of Statistics*, 40(1), 55 – 67. (Funded by: NSERC).

17. **R. Deardon, *B. Habibzadeh* & *H. Y. Chung*** (2012) "Spatial measurement error in infectious disease models" in *Journal of Applied Statistics*, 39(5), 1139 – 1150. (Funded by: NSERC).

16. J. Gallienne, C. Gregg, E. LeBlanc, N. Yaakob, D. Wu, K. Davies, N. Rawlings, Pierson, **R. Deardon**, & Bartlewski "Correlations between ultrasonographic characteristics of corpora lutea (CL) and systemic concentrations of progesterone (P4) during the discrete stages of CL lifespan and secretory activity in cyclic ewes" in *Experimental Biology and Medicine*, 237, 505 – 515.

15. H. Le, Z. Poljak, **R. Deardon** & C. Dewey (2012) "Clustering of and risk factors for the porcine high fever disease in a region of Vietnam" in *Trans-boundary and Emerging Diseases*, 59(1), 49 – 61.

14. K. Bottoms, Z. Poljak, C. Dewey, **R. Deardon**, D. Holtkamp & R. Friendship (2012) "Investigation of strategies for the introduction and transportation of replacement gilts on southern Ontario sow farms" in *BMC Veterinary Research*, 8, 217.

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13. ***A. Gardner***, **R. Deardon** & G. A. Darlington (2011) "Goodness-of-fit measures for individual-level infectious disease models in a Bayesian framework" in *Spatial & Spatio-temporal Epidemiology,* 2(4), 273 – 281. (Funded by: NSERC, OMAFRA).

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12. **R. Deardon**, S. P. Brooks, B. T. Grenfell, M. J. Keeling, M. J. Tildesley, N. J. Savill, D. J. Shaw & M. E. J. Woolhouse (2010), "Inference for individual-level models of infectious diseases in large populations" in *Statistica Sinica*, 20(1), 239-261. (Funded by: Wellcome Trust, UK).

11. ***B. Habibzadeh*** & **R. Deardon** (2010), "The effect of misspecifying latent and infectious periods in space-time epidemic models" in *Statistical Communications in Infectious Diseases*, Vol. 2: Issue 1, Article 7. (Funded by: NSERC).

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10. T. J. McKinley, A. Cook & **R. Deardon** (2009) "Inference in epidemic models without likelihoods" in *The International Journal of Biostatistics*, 5(1), Article 24. (Funded by: NSERC).

9. P.E. Caines, **R. Deardon** & H. P. Wynn (2009) "Bayes' nets of time series: stochastic realizations and projections" in *Optimal Experimental Design and Related Areas* (Ed: L Pronzato and A Zhigliavsky), 155-166, Springer.

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8. A. J. Grant, M. Sheppard, **R. Deardon**, S. P. Brown, G. Foster, C. E. Bryant, D. J. Maskell & P. Mastroeni (2008) "Caspase 3-dependent phagocyte death during systemic Salmonella enterica serovar Typhimurium infection of mice" in *Immunology* ,125(1), 28-37.

7. M. J. Tildesley, **R. Deardon**, N. J. Savill, P. Bessell, S. P Brooks, M. E. J. Woolhouse, B. T. Grenfell & M. J. Keeling (2008) "Accuracy of models for the 2001 foot-and-mouth disease epidemic" in *Proceedings of the Royal Society B*, 275(1641), 1459-1468. (Funded by: Wellcome Trust, UK).

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6. N. J. Savill, D. J. Shaw, **R. Deardon**, M. J. Tildesley, M. J. Keeling, S. P. Brooks, M. E. J. Woolhouse & B. T. Grenfell (2007), "Effect of data quality on estimates of farm infectiousness trends in the UK 2001 foot-and-mouth disease epidemic" in *Journal of the Royal Society Interface*, 4, 235-241. (Funded by: Wellcome Trust, UK).

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5. **R. Deardon**, S. G. Gilmour, N. A. Butler, K. Phelps & R. Kennedy (2006), "Designing field experiments which are subject to representation bias" in *Journal of Applied Statistics*, 33, 7, 665-680. (Funded by: EPSRC, UK).

4. M. J. Tildesley, N. J. Savill, D. J. Shaw, **R. Deardon**, S. P. Brooks, M. E. J. Woolhouse, B. T. Grenfell & M. J. Keeling (2006), "Optimal reactive vaccination strategies for an outbreak of foot-and-mouth disease in Great Britain" in *Nature*, 440, 1080, 83-86. (Funded by: Wellcome Trust, UK).

3. N. J. Savill, D. J. Shaw, **R. Deardon**, M. J. Tildesley, M. J. Keeling, S. P. Brooks, M. E. J. Woolhouse & B. T. Grenfell (2006), "Topographic determinants of foot and mouth disease transmission in the UK 2001 epidemic" in *BMC Veterinary Research*, Vol. 2:3. (Funded by: Wellcome Trust, UK).

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2. **R. Deardon**, S. G. Gilmour, N. A. Butler, K. Phelps & R. Kennedy (2004), "A method for ascertaining and controlling representation bias in field trials for airborne plant pathogens" in the *Journal of Applied Statistics*, 31, 3, 2004, 329-343.

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1. P.E. Caines, **R. Deardon** & H. P. Wynn (2002) "Conditional Orthogonality and Conditional Stochastic Realization" in *New Directions in Mathematical Systems Theory and Optimization*, Springer.

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## Conference Proceedings

- A. Ogilvy, S. Collins, W. Hare, M. Hilts, T. Tuokko, **R. Deardon** & A. Jirasek. "Optimization of solid tank design for fan-beam optical CT based 3D radiation dosimetry." Submitted to the International Conference on 3D and Advanced Dosimetry (IC3DDose), Quebec City, Canada.

- *M. Aghajanpoorpasha* & **R. Deardon** (2019) "On Minimum Cost Non-Uniform Sampling Schemes for Optimal Design of Control Charts: Application to $\overline{X}$ and $T^2$ Control Charts" Fourth North American International Conference on Industrial Engineering and Operations Management (IEOM).

- P.E. Caines, **R. Deardon** & H. P. Wynn (2002) "Conditional independence and general factorisations in times series graphical models" in the *2002 Proceedings of the American Statistical Association, Physical and Engineering Sciences Section* [CD-ROM], Alexandria, VA: American Statistical Association.

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## Published Letters

- M. J. Keeling, M. J. Tildesley, N. J. Savill, M. E. J. Woolhouse, D. J. Shaw, **R. Deardon**, S. P. Brooks, & B. T. Grenfell (2007), "Veterinary epidemiology: Vaccination strategies for foot-and-mouth disease" (reply to Brief Communication Arising by Kitching et al.) in *Nature*, 445, E12-E13, 8 February 2007.

- M. J. Keeling, M. J. Tildesley, N. J. Savill, M. E. J. Woolhouse, D. J. Shaw, **R. Deardon**, S. P. Brooks, & B. T. Grenfell (2006), response to letter, "FMD control strategies" by Wingfield, Miller & Honhold in *The Veterinary Record*, May 20, 2006. (Funded by: Wellcome Trust, UK).

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## Technical & Other Reports

- M. Lewis, P. Brown, C. Colijn, L. Cowen, C. Cotton, T. Day, **R. Deardon**, D. Earn, D. Haskell, J. Heffernan, P. Leighton, K. Murty, S. Otto, E. Rafferty, C. Hughes Tuohy, J. Wu & H. Zhu (2023) "Charting a future for emerging infectious disease modelling in Canada." http://hdl.handle.net/1828/15042

- **R. Deardon** & S. P. Brooks (2007) "Bayesian modelling of the spatio-temporal dynamics of large-scale epidemics," technical report, *Statistical Series* #2007-312, Department of Mathematics & Statistics, University of Guelph.

- P.E. Caines, **R. Deardon** & H. P. Wynn (2007) "Algebraic Methods for Conditional Independence in Time Series Graphical Models," technical report, *Statistical Series* #2007-313, Department of Mathematics & Statistics, University of Guelph.

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## Software

- ***W. Almutiry***, ***V. Warriyar*** & **R. Deardon** (2019) EpiILMCT: Continuous Time Individual-Level Models of Infectious Disease.

  - CRAN Webpage: https://cran.r-project.org/web/packages/EpiILMCT/index.html
  - Github Repository: https://waleedalmutiry.github.io/EpiILMCT/

- ***J. Angevaare***, **R. Deardon**, Z. Feng (2017) PhyloTrees.jl: Phylogenetic trees in Julia.

  - Github repository (Julia): https://github.com/jangevaare/PhyloTrees.jl

- ***J. Angevaare***, **R. Deardon**, Z. Feng (2017) SubstitutionModels.jl: Biological Sequence Substitution Models for Julia.

- Github repository (Julia). https://github.com/BioJulia/SubstitutionModels.jl

- ***V. Warriyar*** & **R. Deardon** (2017) EpiILM: Spatial and Network Based Individual Level Models for Epidemics (R Package).

  - CRAN Webpage: https://CRAN.R-project.org/package=EpiILM

- ***J. Angevaare***, **R. Deardon**, Z. Feng (2016) Pathogen.jl: Simulation and inference tools for phylo-dynamic individual level models.

  - Github repository (Julia): https://github.com/jangevaa/Pathogen.jl

- ***J. Angevaare***, **R. Deardon**, Z. Feng (2014) ilmtools: Tools for simulating and performing inference of individual level infectious disease transmission models.

  - Github repository (Julia): https://github.com/jangevaa/ilmtools

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### Theses

- **R. Deardon** (2001) "Representation Bias in Field Trials for Airborne Plant Pathogens" Ph.D. Thesis, School of Applied Statistics, University of Reading, UK.

- **R. Deardon** (1997) "Multiple Testing: An Investigation of the Power Properties of Members of a Family of Closed Test (including Hommel's Test)" M.Sc. Thesis, Department of Mathematics, University of Southampton, UK.

## Upcoming Presentations

- Invited talk at the International Statistical Institute World Statistics Congress, Ottawa, Canada (July 2023) "Identifying behavioural change mechanisms in epidemic models"

- Invited American Statistical Association (ASA) Committee on International Relations in Statistics (CIRS) and Statistics Without Borders (SWB) Seminar (July 2023) "Introduction to Bayesian Modelling of Epidemics: From Population to Individual-level Models" (Online)

- Invited talk at the CANSSI-NISS Health Data Science Workshop (August 2023), Waterloo, Canada "Individual-level models of disease transmission: a tool for precision health?"

- Invited talk at the Joint Statistical Meetings, Toronto, Canada (August 2023) "Behavioural change mechanisms in spatial disease transmission models"

- Invited talk at the Conference in Statistics and Data Science with Applications in Biology, Genetics, Public Health, and Finance, Thompson Rivers University, Kamloops, Canada (August 2023) "Feedback mechanisms in epidemic models: Is your population alarmed?"

- Invited Biostatistics/SAGE Seminar at the Department of Mathematics & Statistics, University of Calgary, Calgary, Canada (Sept. 2023) "Feedback mechanisms in epidemic models: Is your population alarmed?"

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## Presentations

100. Invited talk at the Data Science Research Day, University of Calgary, Calgary, Canada (June 2023). "Data-driven epidemic modelling: can we do better?"

99. Invited talk at the Department of Mathematics & Statistics, University of British Columbia, Vancouver, Canada (June 2023) "Epidemic models: can we make them behave better?" (Online)

98. Contributed talk at the Statistical Society of Canada Annual Meeting, Carleton University, Ottawa, Canada (May 2023) "Population-dependent time-varying transmission rates in epidemic models"

97. Invited talk at the BayesComp Workshop on Bayesian Inference in Epidemic Models, Levi, Finland (March 2023) "Identifying behavioural change mechanisms in epidemic models"

96. Invited talk at the International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics), Kings College London, London, UK (Dec. 2022) "Behavioural change in epidemic models"

95. Invited talk at the Canadian Network for Modelling Infectious Diseases (CANMOD) (Oct. 2022) "Behavioural change in epidemic models" (Online)

94. Plenary talk at the Waterloo Student Conference in Statistics, Actuarial Science and Finance, Waterloo, Ontario, Canada (Oct. 2022) "Epidemic models: can we make them behave better?"

93. Invited talk at GEOMED Conference, Irvine, California, USA (Oct. 2022) "Variable screening in spatial epidemic models"

92. One day workshop at the International Society for Bayesian Analysis World Meeting, Montreal, Quebec, Canada (June 2022) "Bayesian Modelling of Epidemics" (co-taught with *C. Ward*).

91. Invited talk at the International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics), King's College, London, UK (December 2021) "Behavioural change in spatial epidemic models" (Online)

90. Invited talk at the Society of Undergraduate Mathematics Calgary (SUM-C) Research Evening, University of Calgary, Calgary, Canada (Oct. 2021) "Infectious Disease Modelling & Surveillance"

89. Invited talk at the Joint Statistical Meetings, Seattle, USA (August 2021) "Machine learning-assisted infectious disease modelling" (Online)

88. Invited talk at the National Institute for Applied Statistics Research Australia (NIASRA), University of Wollongong, Australia (July 2021) "Fast parameterization of spatial epidemic models: let's emulate." (Online)

87. Invited talk at the ISI World Statistics Congress, The Hague, the Netherlands (July 2021) "Infectious disease modelling in a hurry" (Online)

86. Invited talk at the Statistical Society of Canada Annual Meeting, Memorial University, St. John's, Canada (June 2021) "Infectious disease modelling with the assistance of machine learning" (Online)

85. Invited talk at the Statistical Society of Canada Annual Meeting, Memorial University, St. John's, Canada (June 2021) "Information on the NSERC 2021 competition results and Discovery Grant preparation" (co-presented with Adele Ngi-Song, NSERC Program Officer) (Online)

84. Invited discussant for the "Student supervision: Advice and insights on academic advising" session at the Statistical Society of Canada Annual Meeting, Memorial University, St. John's, Canada (June 2021) (Online)

83. Invited talk at CANSSI-NISS Health Data Science Workshop (May 2021) "Modelling COVID-19 using machine learning-based inference methods" (Online)

82. Short course (half-day) at CANSSI-NISS Health Data Science Workshop (May 2021) "Introduction to disease modeling" (Online)

81. Invited talk at University of Calgary, Calgary, Canada (March 2021) "Machine learning our way to data-driven infectious disease modelling" (Online)

80. Invited talk at McMaster University, Hamilton, Canada (March 2021) "Machine learning our way to data-driven infectious disease modelling" (Online)

79. Invited talk at the International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics), King's College, London, UK (December 2020) "Machine learning assisted infectious disease modelling" (Online)

78. Invited talk at University of Victoria, Victoria, Canada (October 2020) "Geographically-dependent individual-level models for infectious disease transmission" (Online)

77. Invited talk at the Joint Statistical Meetings, Philadelphia, USA (August 2020) "Geographically-dependent individual-level models for infectious disease transmission" (Online)

76. Biostatistics Section Annual Workshop (Short course) at the Statistical Society of Canada Conference, Ottawa, Canada (June 2020) "Introduction to Epidemic Modelling" (Online)

75. Invited talk at the Department of Mathematics & Statistics, York University, Canada (March 2020) "Parameterization via emulation: Spatial models of infectious disease transmission"

74. Plenary talk at the Annual Meeting of Alberta Statisticians, University of Calgary, Calgary, Canada (Sept. 2019) "Approximate Bayesian computation for epidemic models with uncertain underlying contact networks"

73. Invited talk at Canadian Organization of Medical Physicists (COMP) Annual Meeting, Kelowna, BC, Canada. (Sept. 2019) "Artificial intelligence in infectious disease epidemiology"

72. Invited talk at GEOMED Conference, Glasgow, UK (Aug. 2019) "Identifying spatial dynamics of infectious disease spread via machine learning classifiers"

71. Invited talk at the International Conference on Econometrics and Statistics (EcoSta), Taichung, Taiwan (June 2019) "Parameterization via emulation: Spatial models of infectious disease transmission"

70. Invited talk at the Canadian Student Statistical Conference, University of Calgary, Calgary, Canada (May 2019) "The O'Brien Institute for Public Health (OIPH) & The University of Calgary Biostatistics Centre (UCBC)"

69. Invited talk at the Statistical Society of Canada Annual Meeting, University of Calgary, Calgary, Canada (May 2019) "NSERC Discovery Grant Workshop" (co-presented with Michelle Payne, NSERC Program Officer)

68. Invited discussant for the "Rocky Mountain and Atlantic Collaborations in the Health Sciences" session at the Statistical Society of Canada Annual Meeting, University of Calgary, Calgary, Canada (May 2019)

67. Invited talk at the Department of Biostatistics, University of Iowa, Iowa City, USA (December 2018) "Parameterization via emulation: spatial models of infectious disease transmission"

66. Invited talk at BIRS workshop on Mathematical and Statistical Challenges in Bridging Model Development, Parameter Identification and Model Selection in the Biological Sciences, Banff, Canada (November 2018) "Emulation-based methods for parameterizing spatial infectious disease models"

65. Invited electronic poster at the Joint Statistical Meetings, Vancouver, Canada (July 2018) "Deep learning for infectious disease systems."

64. Invited talk at the International Environmentrics Society Meeting, Guanaujuato, Mexico (July 2018) "Spatial infectious disease models incorporating aggregate-level spatial structure."

63. Plenary talk at the Medical Physics & Data Analytics Workshop, University of British Columbia-Okanogan, Canada (July 2018) "Bayesian optimal design for nonlinear systems: case studies from infectious disease epidemiology."

62. Invited talk at the Western North American Region of The International Biometric Society (WNAR-IBS) /Institute of Mathematical Statistics (IMS) Joint Conference, University of Alberta, Edmonton, Canada (June 2018) "Approximating the spatio-temporal dynamics of infectious disease via emulation"

61. Short course at the Western North American Region of The International Biometric Society (WNAR-IBS) /Institute of Mathematical Statistics (IMS) Joint Conference, University of Alberta, Edmonton, Canada (June 2018) "Individual-level Transmission Process Modelling: Epidemics, Invasive Species and Beyond."

60. Invited talk at the Workshop for Causal Adjustment in the Presence of Spatial Dependence, Centre de Recherches Mathématiques, Montréal, Canada (June 2018) "Spatial models of infectious disease transmission: data and computation."

59. Invited talk at the University of Calgary Veterinary Medicine Research Festival, Calgary, Canada (May 2018) "R Software for individual-level transmission modelling."

58. Invited talk at MacDATA Institute, McMaster University (Nov. 2017) "Approximating the spatio-temporal dynamics of infectious disease via emulation."

57. Invited talk at GEOMED Conference, Porto, Portugal (Sept. 2017) "Individual-level infectious disease models incorporating aggregate level spatial structure"

56. Invited talk at the Joint Statistical Meetings, Baltimore, USA (Aug. 2017) "Individual-level infectious disease models incorporating aggregate level spatial structure"

55. Two-day post-conference workshop at the Canadian Veterinary Epidemiological and Preventive Medicine (CAVEPM) Conference (June 2017), University of Calgary, Calgary, Canada "Bayesian Infectious disease modeling"

54. Keynote talk at the Calgary Applied and Industrial Mathematical Sciences Conference, Calgary, Canada (May 2017) "An introduction to Bayesian individual-level infectious disease modelling"

53. Plenary talk at the Alberta Mathematics Dialogue Conference, MacEwen University, Edmonton, Canada (April 2017) "An introduction to individual-level infectious disease modelling within a Bayesian statistical framework"

52. Invited talk at the Department of Epidemiology, Biostatistics & Occupational Health, McGill University, Montréal, Canada (Jan. 2017) "Inferring the spatial dynamics of infectious disease via Gaussian process emulation"

51. Invited talk at BIRS Workshop on Mathematical Biology for Understanding Emerging Infectious Diseases at the Human-Animal-Environment Interface: a One Health Approach, Banff, Canada (Nov 2016) "Real Time Modelling of Epidemics (A Statistician's Perspective)"

50. Invited talk at Joint Statistical Meetings, Chicago, USA (July 2016) "Gaussian process emulation for spatial infectious disease models"

49. Invited talk at International Workshop on Applied Probability (IWAP), Toronto, Canada (June 2016) "Approximate Bayesian computation for epidemic models with uncertain underlying contact networks"

48. Invited talk at the Statistical Society of Canada Annual Meeting, Brock University, St. Catherines, Canada (May 2016) "Infectious disease modelling in the presence of underlying contact network uncertainty"

47. Invited talk at the Pacific Institute of Mathematical Sciences (PIMS), Calgary, Canada (May 2016) " Bayesian study design for non-linear systems: a disease transmission experiment case study"

46. Invited talk at National University of Singapore, Singapore (April 2016) "Emulator-based inference for models of large-scale infectious disease systems."

45. Invited talk at School of Public Health, University of Hong Kong, Hong Kong (March 2016) "Optimal experimental and study design for infectious disease systems of animals."

44. Invited talk at Simon Fraser University, Canada (Feb. 2016) "Approximate Bayesian inference for large-scale epidemic models."

43. Invited talk at Annual Conference on Neural Information Processing Systems (NIPS), Montréal, Canada (Dec. 2015) "ABC-based inference for epidemic models with uncertain underlying contact networks."

42. Invited talk at GEOMED Conference, University of Florence, Italy (Sept. 2015) "Approximate inference for spatial epidemic models."

41. Invited talk at Bioinformatics Symposium, University of Calgary, Canada (May 2015) "Computational statistics, disease modelling and design."

40. Invited talk at Descriptive and Predictive Methods in the Study of Communicable Diseases: Biomathematics & Biostatistics Workshop, University of Guelph/Fields Institute, Guelph, Canada (May 2015) "Emulator based inference for models of large-scale infectious disease systems."

39. Invited talk at Evidence-based Decision Support for Food Security Workshop, University of Warwick, Coventry, UK (April 2015) "Emulator based inference for models of large-scale infectious disease systems."

38. Invited talk at Harvard School of Public Health, Boston, USA (March 2015) "Bayesian optimal design methods for infectious disease transmission studies."

37. Invited talk at University of Calgary (Community Health Sciences), Canada (Feb. 2015) "A Bayesian approach to infectious disease transmission modelling – dealing with uncertainty."

36. Invited talk at University of Victoria, Victoria, Canada (Jan. 2015) "Sampling-based approximate inference for large-scale infectious disease transmission models."

35. Invited talk at OMAFRA Emergency Management Expo, Guelph, Canada (Dec. 2014) "Using experimental design to better understand infectious disease spread in the livestock industries."

34. Invited talk at University of Calgary (SAGE/Biostatistics, Mathematics & Statistics), Canada (Nov 2014) "The ABCs of infectious disease modelling."

33. Invited talk at 36th Annual Meeting of Alberta Statisticians, Edmonton, Canada (Oct 2014) "Bayesian optimal design of disease transmission experiments (and other issues in disease modelling)."

32. Invited talk at Statistical Society of Canada Annual Meeting, Toronto, Canada (May 2014) "Optimal experimental design for infectious disease systems of animals."

31. Invited talk at Simulation Models of Infectious Diseases (SIMID) Workshop, Hasselt, Belgium (April 2014) "Optimal experimental design for infectious disease systems of animals."

30. Invited talk at University of Calgary, Canada (April 2014) "Optimal experimental design for infectious disease systems of animals."

29. Invited talk at University of Prince Edward Island, Canada (Dec 2013) "Data uncertainty in herd-level infectious disease transmission modelling."

28. Invited talk at the Statistical Science in Society Conference, University of Waterloo, Canada (August 2013) "Approximate methods of parameter estimation for spatial epidemic models."

27. Invited talk at the International Environmentrics Society Meeting, Anchorage, Alaska, USA (June 2013) "Parameterizing individual-level models of infectious disease spread using sampling-based likelihood approximations."

26. Invited talk at University of Windsor, Canada (Oct 2012) "Efficient forms of individual-level models for large-scale spatial infectious disease."

25. Invited talk at Statistical Society of Canada Annual Meeting, Guelph, Canada (June 2012) "Efficient forms of individual-level models for large-scale spatial infectious disease."

24. Invited talk at Fields Institute (IDEA Seminar), Toronto, Canada (April 2012) "A Bayesian approach to dealing with uncertainty in infectious disease modelling."

23. Invited talk at McMaster University, Canada (Feb 2012) "Efficient forms of individual-level models for large-scale spatial infectious disease."

22. Invited talk at University of Manitoba (Jan 2012) "Computationally efficient forms of spatial infectious disease models for large populations."

21. Invited talk at University of Warwick, UK (Nov 2011) "Latent conditional individual level models for infectious disease modelling."

20. Invited talk at University of Toronto, Canada (Oct 2011) "Efficient forms of individual-level models for large-scale spatial infectious disease."

19. Invited talk at OMAFRA Emergency Management Expo, Guelph, Canada (Sept 2011) "A statistical approach to modelling infectious diseases."

18. Invited talk at University of Saskatoon, Canada (Aug 2011) " Individual-level models of infectious disease."

17. Invited talk at BIRS Workshop on Front propagation in heterogeneous media: mathematical, numerical, and statistical issues in modelling a forest fire front, Banff, Canada (Oct 2010) "Modelling the spatio-temporal dynamics of fire spread."

16. Invited talk at NICDS workshop, University of Montréal, Canada (March 2010) "Finite mixtures of infectious disease models."

15. Invited talks at University of McGill, Canada (Dec 2009) "Likelihood-free inference for epidemic models" & "Individual-level modelling of infectious diseases."

14. Invited talk at Statistical Society of Canada conference, Vancouver, Canada (June 2009) "Likelihood-free inference for epidemic models."

13. Invited talk at University of Toronto, Canada (Jan 2009) "Likelihood-free inference for epidemic models."

12. Invited talk at the Department of Mathematics & Statistics, York University, Canada (Sept 2007) ?Modelling the spatio- temporal dynamics of infectious diseases: the UK 2001 foot-and-mouth epidemic?

11. Invited talk at University of Waterloo, Canada (Sept 2007) "Modelling the spatio-temporal dynamics of the UK 2001 foot-and-mouth epidemic."

10. Invited talk at Public Health Agency of Canada, Guelph, Canada (May 2007) "The statistical modelling of infectious diseases in time and space."

9. Invited talk at the SSC Southern Ontario New Investigator Workshop, University of Waterloo, Canada (February 2007) "The statistical modelling of infectious diseases in time and space.;;

8. Invited talk at the Department of Population Medicine, Ontario Veterinary College, University of Guelph, Canada (November 2006) "Modelling infectious diseases over time and space"

7. Invited talk at the European Meeting of Statisticians, Torun, Poland (July 2006) "Modelling the UK 2001 foot-and-mouth epidemic".

6. Invited talk at the Health Protection Agency, London, UK (July 2005) "Modelling the UK 2001 Foot-and-Mouth Epidemic: A Bayesian MCMC Approach"

5. Invited talk at Lund University, Sweden (March 2005) "The UK 2001 Foot-and-mouth Disease Epidemic (A Case Study in Individual Level Spatial Epidemiology)."

4. Invited talk at Imperial College London, UK (June 2004) "Modelling the UK 2001 Foot-and-Mouth Epidemic: A Bayesian MCMC Approach"

3. Invited talk at the MRC-Biostatistics Unit, University of Cambridge, UK (March 2004) "The UK 2001 Foot-and-mouth Disease Epidemic (A Case Study in Individual Level Spatial Epidemiology)"

2. Invited talk at the Royal Statistical Society, London, UK (May 2003) "Using Bayesian MCMC to model the spatio-temporal dynamics of foot-and-mouth disease."

1. Invited talk at the Department of Mathematics & Statistics, Queen Mary, University of London (May 2000) "The use of an airborne plant disease dispersal simulation in designing agricultural experiments which minimise representation bias"