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

Submitted Articles

104. **C. Ward, R. Deardon** & A. Schmidt “Multivariable behavioural change modelling of epidemics in the presence of undetected infections” submitted to *Statistics in Medicine*. <https://arxiv.org/abs/2503.00982>
 103. **Y. Mao, R. Deardon** & L. Deeth “Identifying memory mechanisms in Bayesian models of behavioural change during epidemics” submitted to *Annals of Applied Statistics*
 102. **Y. Mao, R. Deardon** & L. Deeth “Memory mechanisms for behavioural change in Bayesian individual level spatial epidemic models” submitted to *Infectious Disease Modelling*
 101. **Y. Zhang, R. Deardon** & L. Deeth “Behavioural change model choice in spatial epidemic models” submitted to *Canadian Journal of Statistics*.
 100. **Y. Zhang, R. Deardon** & L. Deeth “Composite method for fast computation of individual level spatial epidemic models” submitted to *Spatial Statistics* (revision requested). <https://arxiv.org/pdf/2509.04660>
 99. **J. Peitsch**, G. Pokharel & **R. Deardon** “Directionally-dependent spatial epidemic models” submitted to *Spatial Statistics* (revision requested).
 98. V. Callier, **R. Deardon** & C. Viboud “Spatio-temporal spread of COVID-19 over three waves in the continental United States” submitted to *Proceedings of the Royal Society B* (revision requested).
 97. **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* (revision requested).
 96. **J. MacLean** & **R. Deardon** “Behavioural change in Canadian disease outbreaks” submitted to the *Canadian Journal of Statistics*.
 95. **R. Li, R. Deardon**, N. Li, J. Conly & J. Leal “Bayesian compartmental modelling of the transmission dynamics of methicillin-resistant *Staphylococcus aureus* (MRSA) within hospitals in Edmonton, Canada” submitted to the *Canadian Journal of Statistics*. <http://arxiv.org/abs/2511.07353>
 94. **R. Li, R. Deardon**, N. Li, J. Conly & J. Leal “Modelling the effect of interventions to prevent the transmission of methicillin-resistant *Staphylococcus aureus* (MRSA) within hospitals in Edmonton, Canada” submitted to *Infectious Disease Modelling*.
 93. L. G. Salazar, H. McKenzie, **R. Deardon**, K. Pepin, R. Brook, J. Bahamon, C. Neva & M. Pruvot “Interaction risk between wild pigs and livestock: implications for potential infectious disease transmission in Alberta, Canada” submitted to *Preventive Veterinary Medicine*.
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Accepted/In Press

92. **M. Kamso**, S. Whittle, J. Pardo Pardo, R. Buchbinder, G. Wells, **R. Deardon**, T. Sajobi, G. Tomlinson, E. Jesse, J. Thomas, S. Kelly, G. Hazlewood “A semi-automated approach facilitated the assessment of the certainty of evidence for direct comparisons in network meta-analyses” to appear in the *Journal of Clinical Epidemiology*. <http://ssrn.com/abstract=5205661>.

91. **M. Kamso**, S. Whittle, J. Pardo Pardo, R. Buchbinder, G. Wells, **R. Deardon**, T. Sajobi, G. Tomlinson, E. Jesse, J. Thomas, S. Kelly, G. Hazlewood “A semi-automated approach facilitated the assessment of the certainty of evidence for indirect and mixed comparisons in network meta-analyses” to appear in the *Journal of Clinical Epidemiology*. <http://ssrn.com/abstract=5205660>.
90. H. Qureshi, T. Hughes, E. Franco, K. Fiest, J. Gratrix, P. Smyczek, R. Read, A. Afzal, **R. Deardon**, A. Kassam & M. Fidler-Benaoudia (2026) “Risk of cancer among individuals with a history of bacterial sexually transmitted infections: a population-based study in Alberta, Canada” available online in *International Journal of Cancer*. <http://doi.org/10.1002/ijc.70215>

Published Articles

89. **M. Ward**, **R. Deardon** & L. Deeth (2025) “A framework for incorporating behavioural change into individual-level spatial epidemic models” in the *Canadian Journal of Statistics*, 53(1), e11828. <https://doi.org/10.1002/cjs.11828>
 88. **T. Akter** & **R. Deardon** (2025) “Conditional logistic individual-level models of spatial infectious disease dynamics” in *Infectious Disease Modelling*, 10(1), 268-286. <https://doi.org/10.1016/j.idm.2024.10.008>
 87. **C. Rahul** & **R. Deardon** (2025) “Behavioural change piecewise constant spatial epidemic models” in *Infectious Disease Modelling*, 10(1), 302-324. <https://doi.org/10.1016/j.idm.2024.10.006>
 86. **T. Akter** & **R. Deardon** (2025) “Variable screening methods in conditional logistic individual level models of disease spread” in *Spatial & Spatiotemporal Epidemiology*, 54, 100742. <https://doi.org/10.1016/j.sste.2025.100742>
 85. 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 “Charting a future for emerging infectious disease modelling in Canada” (2025) in *Lasting Disruption: Economic and Social Impacts of COVID-19 in Canada*, McGill-Queen’s University Press. (Ed: Christopher Cotton). <http://hdl.handle.net/1828/15042>.
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84. **C. Rahul** & **R. Deardon** (2024) “Individual-level models of disease transmission incorporating non-parametric spatial risk” in *Spatial & Spatiotemporal Epidemiology*, 50, 100664. <https://doi.org/10.1016/j.sste.2024.100664>
 83. **E. Hodzic-Santor** & **R. Deardon** (2024) “Edge effects in spatial infectious disease models” in *Spatial & Spatiotemporal Epidemiology*, 50, 100673. <https://doi.org/10.1016/j.sste.2024.100673>
 82. M. Biesheuvel, **C. Ward**, P. Penterman, E. van Engelen, G. Schaik, **R. Deardon** & H. Barkema (2024) “Within-herd transmission of *Mycoplasma bovis* infection in 20 Dutch dairy herds” in *Journal of Dairy Science*, 107(1), 503-516. <https://doi.org/10.3168/jds.2023-23407>
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81. **C. Ward**, **R. Deardon** & A. Schmidt (2023) “Bayesian modelling of dynamic behavioural change during an epidemic” *Infectious Disease Modelling*, 8(4), 947-963. <https://doi.org/10.1016/j.idm.2023.08.002>
 80. **L. Amiri**, M. Torabi & **R. Deardon** (2023) “Spatial modelling of infectious diseases with covariate measurement error” in *Journal of the Royal Statistical Society: Series C*, 73(2), 460-477. <https://doi.org/10.1093/jrsssc/qlad104>
 79. **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.

78. **T. Akter** & **R. Deardon** (2023) “Comparison of variable screening methods in infectious disease transmission models” in *Spatial and Spatiotemporal Epidemiology*, 47, 100622.
 77. **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 (2023). “Crowdsourcing and automation facilitated the identification and classification of randomized controlled trials in a living review’ in *Journal of Clinical Epidemiology*, 164, 1-8. <https://doi.org/10.1016/j.jclinepi.2023.10.007>
 76. **M. Pasha**, **R. Deardon** & A. Rahim (2023) “A study on inspection schemes in optimal design of control charts for deteriorating processes” in *Quality and Reliability Engineering International*, 39(3), 732-751. <https://doi.org/10.1002/qre.3253>
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75. **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>
 74. **J. Angevaere**, Z. Feng & **R. Deardon** (2022) “Pathogen.jl: Infectious disease transmission network modelling with Julia” in *Journal of Statistical Software*, 104(4), 1?30.
 73. **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>
 72. **M. Ward**, L. Deeth & **R. Deardon** (2022) “Cluster-aggregation-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>
 71. **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>
 70. **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>
 69. **B. Jafari** & **R. Deardon** (2022) “Bias and Bias-Correction for Individual-Level Models of Infectious Disease” in *Spatial & Spatiotemporal Epidemiology*, 43, 100524.
 68. 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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67. **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>
 66. **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>
 65. **J. Angevaere**, 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>

64. **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>
 63. **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
 62. **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>
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 60. 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>
 59. 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>
 58. 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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57. **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>
 56. **V. Warriyar**, **W. Almutiry** & **R. Deardon** (2020) “Individual level modelling of infectious disease data: EpiILM” in *The R Journal* 12(1), 199-217.
 55. 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.
 54. G. Hazlewood, S. Whittle, **M. Kamso**, E. Akl, G. Wells, P. Tugwell, M. Thomas, C. Lee, M. Ejaredar, D. Choudhary, D. Neuen, J. New-Tolley, M. Powell, A. Quinlivan, A. Qaddoura, **R. Deardon**, L. Maxwell, J. Pardo Pardo, S. Kelly, R. Buchbinder (2020) “Disease-modifying anti-rheumatic drugs for rheumatoid arthritis: a systematic review and network meta-analysis” in *Cochrane Database of Systematic Reviews*, 2020 (3), CD013562
 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. Hiltz, **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>
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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 transmission” 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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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. Bifulchi**, **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. Fryxell (2013) “An empirically parameterized individual based model of animal movement, perception and memory” in *Ecological Modelling*, 251: 158-172.
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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.
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 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.
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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 Zhiglavsky), 155-166, Springer.
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