

Curriculum Vitae

Dr Michael Lydeamore
Department of Econometrics and Business Statistics
Monash University
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Appointments Held

Senior Lecturer - Econometrics and Business Statistics Monash University	2021 —
COVID-19 Modelling & Forecasting Lead Manager, Analytics Department of Health and Human Services, Victoria	2020
Postdoctoral Research Fellow Monash University	2019 — 2021
Honorary Team Member SaferCare Victoria	2019 —
Honorary Research Fellow Alfred Health	2019 —
Research Fellow The Kirby Institute, University of New South Wales	2018 — 2019

Education

Doctor of Philosophy – Applied Mathematics The University of Melbourne Thesis title: Mechanistic and statistical models of skin disease transmission	2015 — 2019
Masters of Philosophy – Applied Mathematics The University of Adelaide Thesis title: Approximations of stochastic household models for comparing antiviral allocation schemes Awarded the Applied Probability Trust prize for the highest mark with a project in Applied Mathematics and Statistics	2013 — 2014
Bachelor of Mathematical Sciences The University of Adelaide Graduated with a double major in applied and pure mathematics	2010 — 2013

Publications

Preprints

- Conway, E., Walker, C., **Lydeamore, M.**, Golding, N., Ryan, G., Mavec, D., Oates, J., Kabashima, G., Price, D. J., Shearer, F., Cromer, D., Davenport, M. P., McCaw, J., Eriksson, E. M., Hodgkin, P. D., Wu, L., Le, T. P., Baker, C. M., Mueller, I., & McVernon, J. (2024). *Optimal timing of booster doses in a highly vaccinated population with minimal natural exposure to COVID-19*. medRxiv. <https://doi.org/10.1101/2024.05.14.24307386>
- **Lydeamore, M. J.**, Zachreson, C., Conway, E., Shearer, F. M., Baker, C. M., Ross, J. V., Miller, J. C., McCaw, J. M., Geard, N., McVernon, J., & Price, D. J. (2024). *Border quarantine, vaccination and public health measures to mitigate the impact of COVID-19 importations: a modelling study*. medRxiv. <https://doi.org/10.1101/2024.04.22.24305704>
- Le, T. P., Conway, E., Akpan, E., Abell, I., Abraham, P., Baker, C. M., Campbell, P. T., Cromer, D., **Lydeamore, M. J.**, McDonough, Y., Mueller, I., Ryan, G., Walker, C., Wang, Y., Carvalho, N., & McVernon, J. (2023). *Cost-effective boosting allocations in the post-Omicron era of COVID-19 management*. medRxiv. <https://doi.org/10.1101/2023.11.14.23298536>

Peer-reviewed articles

- **Lydeamore, M. J.**, Wu, D., Donker, T., Gorrie, C., Higgs, C. K., Easton, M., Hennessy, D., Geard, N., Howden, B. P., Cooper, B. S., Wilson, A., Peleg, A. Y., & Stewardson, A. J. (2024). Changes in isolation guidelines for CPE patients results in only mild reduction in required hospital beds. *Infection, Disease & Health*. <https://doi.org/10.1016/j.idh.2024.10.004>
- **Lydeamore, M. J.**, Donker, T., Wu, D., Gorrie, C., Turner, A., Easton, M., Hennessy, D., Geard, N., Howden, B. P., Cooper, B. S., Wilson, A., Peleg, A. Y., & Stewardson, A. J. (2024). Carbapenemase-producing enterobacterales colonisation status does not lead to more frequent admissions: a linked patient study. *Antimicrobial Resistance & Infection Control*, 13(1), 82. <https://doi.org/10.1186/s13756-024-01437-x>
- Shearer, F. M., McCaw, J. M., Ryan, G. E., Hao, T., Tierney, N. J., **Lydeamore, M. J.**, Wu, L., Ward, K., Ellis, S., Wood, J., McVernon, J., & Golding, N. (2024). Estimating the impact of test-trace-isolate-quarantine systems on SARS-CoV-2 transmission in Australia. *Epidemics*, 47, 100764. <https://doi.org/10.1016/j.epidem.2024.100764>
- Le, T. P., Abell, I., Conway, E., Campbell, P. T., Hogan, A. B., **Lydeamore, M. J.**, McVernon, J., Mueller, I., Walker, C. R., & Baker, C. M. (2024). Modelling the impact of hybrid immunity on future COVID-19 epidemic waves. *BMC Infectious Diseases*, 24(1), 407. <https://doi.org/10.1186/s12879-024-09282-4>
- Conway, E., Walker, C. R., Baker, C., **Lydeamore, M. J.**, Ryan, G. E., Campbell, T., Miller, J. C., Rebuli, N., Yeung, M., Kabashima, G., Geard, N., Wood, J., McCaw, J. M., McVernon, J., Golding, N., Price, D. J., & Shearer, F. M. (2023). COVID-19 vaccine coverage targets to inform reopening plans in a low incidence setting. *Proceedings of the Royal Society B: Biological Sciences*, 290(2005), 20231437. <https://doi.org/10.1098/rspb.2023.1437>
- Mitchell, B. G., Stewardson, A. J., Kerr, L., Ferguson, J. K., Curtis, S., Busija, L., **Lydeamore, M. J.**, Graham, K., & Russo, P. L. (2023). The incidence of nosocomial bloodstream infection and urinary tract infection in Australian hospitals before and during the COVID-19 pandemic: an interrupted time series study. *Antimicrobial Resistance & Infection Control*, 12(1), 61. <https://doi.org/10.1186/s13756-023-01268-2>

- Zachreson, C., Shearer, F. M., Price, D. J., **Lydeamore, M. J.**, McVernon, J., McCaw, J., & Geard, N. (2022). COVID-19 in low-tolerance border quarantine systems: Impact of the Delta variant of SARS-CoV-2. *Science Advances*, 8(14), eabm3624. <https://doi.org/10.1126/sciadv.abm3624>
- **Lydeamore, M. J.**, Mitchell, B. G., Bucknall, T., Cheng, A. C., Russo, P. L., & Stewardson, A. J. (2022). Burden of five healthcare associated infections in Australia. *Antimicrobial Resistance & Infection Control*, 11(1), 69. <https://doi.org/10.1186/s13756-022-01109-8>
- Trauer, J. M., **Lydeamore, M. J.**, Dalton, G. W., Pilcher, D., Meehan, M. T., McBryde, E. S., Cheng, A. C., Sutton, B., & Ragonnet, R. (2021). Understanding how Victoria, Australia gained control of its second COVID-19 wave. *Nature Communications*, 12(1), 6266. <https://doi.org/10.1038/s41467-021-26558-4>
- McMahon, J. H., **Lydeamore, M. J.**, & Stewardson, A. J. (2021). Bringing evidence from press release to the clinic in the era of COVID-19. *Journal of Antimicrobial Chemotherapy*, 76(3), 547–549. <https://doi.org/10.1093/jac/dkaa506>
- Zachreson, C., Mitchell, L., **Lydeamore, M. J.**, Rebuli, N., Tomko, M., & Geard, N. (2021). Risk mapping for COVID-19 outbreaks in Australia using mobility data. *Journal of The Royal Society Interface*, 18(174), 20200657. <https://doi.org/10.1098/rsif.2020.0657>
- Sullivan, S. G., Brotherton, J. M., Lynch, B. M., Cheung, A., **Lydeamore, M.**, Stevenson, M., Firestone, S., Canevari, J., Nguyen, H. N. J., & Carville, K. S. (2021). Population-based analysis of the epidemiological features of COVID-19 epidemics in Victoria, Australia, January 2020–March 2021, and their suppression through comprehensive control strategies. *Lancet Regional Health - Western Pacific*, 17.
- **Lydeamore, M. J.** (2021). Mathematical models to support Victoria’s COVID-19 response: a blunt instrument to a complex problem. *Journal of the Australian Mathematical Society*. <https://austms.org.au/wp-content/uploads/2021/07/Lydeamore.pdf>
- **Lydeamore, M. J.**, Campbell, P. T., Price, D. J., Wu, Y., Marcato, A. J., Cuninghame, W., Carapetis, J. R., Andrews, R. M., McDonald, M. I., McVernon, J., Tong, S. Y. C., & McCaw, J. M. (2020). Estimation of the force of infection and infectious period of skin sores in remote Australian communities using interval-censored data. *PLOS Computational Biology*, 16(10), e1007838. <https://doi.org/10.1371/journal.pcbi.1007838>
- Cuninghame, W., McVernon, J., **Lydeamore, M. J.**, Andrews, R. M., Carapetis, J., Kearns, T., Clucas, D., Dhurrkay, R. G., Tong, S. Y. C., & Campbell, P. T. (2019). High burden of infectious disease and antibiotic use in early life in Australian Aboriginal communities. *Australian and New Zealand Journal of Public Health*, 43(2), 149–155. <https://doi.org/10.1111/1753-6405.12876>
- **Lydeamore, M. J.**, Campbell, P. T., Regan, D. G., Tong, S. Y. C., Andrews, R. M., Steer, A. C., Romani, L., Kaldor, J. M., McVernon, J., & McCaw, J. M. (2018). A biological model of scabies infection dynamics and treatment informs mass drug administration strategies to increase the likelihood of elimination. *Mathematical Biosciences*. <https://doi.org/10.1016/j.mbs.2018.08.007>
- **Lydeamore, M. J.**, Campbell, P. T., Cuninghame, W., Andrews, R. M., Kearns, T., Clucas, D., Dhurrkay, R. G., Carapetis, J., Tong, S. Y. C., McCaw, J. M., & McVernon, J. (2018). Calculation of the age of the first infection for skin sores and scabies in five remote communities in northern Australia. *Epidemiology & Infection*, 1–8. <https://doi.org/10.1017/S0950268818001061>
- **Lydeamore, M. J.** (2018). *Mechanistic and statistical models of skin disease transmission*. <http://minerva-access.unimelb.edu.au/handle/11343/221232>
- Vito, T., Singh, G. R., Davison, B., Campbell, P. T., **Lydeamore, M. J.**, Robinson, A., McVernon, J., Tong, S. Y. C., & Geard, N. (2017). Indigenous Australian household structure: a simple data collection tool and implications for close contact transmission of communicable diseases. *PeerJ*, 5, e3958. <https://doi.org/10.7717/peerj.3958>
- **Lydeamore, M.**, Bean, N., Black, A. J., & Ross, J. V. (2016). Choice of Antiviral Allocation Scheme for Pandemic Influenza Depends on Strain Transmissibility, Delivery Delay and Stockpile Size. *Bulletin of Mathematical Biology*, 1–29. <https://doi.org/10.1007/s11538-016-0144-6>

Funding

Almost all of this funding was obtained in partnership with large, collaborative teams.

Modelling Work in Low and Middle Income Counties in the Western Pacific Region for the COVID-19 SAGE Working Group World Health Organisation Awarded value: \$8,157	2024
Modelling To Support Australia's Resilience to and Preparedness for Omicron And Future Sars-Cov-2 Variants Commonwealth Government of Australia Awarded value: \$80,059	2024
Contractual Partner to Conduct Research on Healthcare-Associated Infection Rates in Phillippine Hospitals World Health Organisation Phillippines Awarded value: \$72,078	2023
Centre of Western Public Health Unit Contract Research Awarded value: \$25,000	2023
Extending and comparing methods for projecting social contact matrices SPECTRUM/SPARK Seed Funding Awarded value: \$19,438	2022
Quantifying longitudinal relationships between community mobility and COVID-19 case incidence in west metropolitan Melbourne SPECTRUM/SPARK Seed Funding Awarded value: \$19,896	2022
Modelling to support Australia's national plan for COVID-19 Commonwealth Government of Australia Awarded value: \$147,536	2021
Modelling to support Australia's transition to 'COVID-normal' Australian Office of Health Protection Awarded value: \$25,620	2021

Conference presentations and contributed talks

Networks of networks in infectious diseases modelling — Panelist Infectious Diseases Modelling Conference	2024
Generating synthetic contact matrices using open-source data Australia and New Zealand Industrial Applied Mathematics Conference	2024
Data-Driven Insights into Healthcare Challenges: Two Case Studies — Invited Speaker Universitätsklinikum Freiburg Seminar Series	2023
Data-Driven Insights into Healthcare Challenges: Two Case Studies UNSW Australia Statistics & Data Science Seminar	2023
Burden of healthcare associated infections in Australia Australia and New Zealand Industrial Applied Mathematics Conference	2022

Exponential Random Graph Models and CPE transmission — Invited Speaker Melbourne Mathematical Biology Seminar Series	2021
Mathematical modelling for COVID-19 in Victoria, Australia — Invited Speaker Math for Industry Forum, Vietnam	2021
The associations between transmission of CPE and ward connectivity: a network analysis Australasian Society for Infectious Diseases Annual Scientific Meeting	2021
The burden of healthcare acquired infections in Australian public hospitals Australasian Society for Infectious Diseases Annual Scientific Meeting	2021
Decision Making and Mathematical Biology - Victoria's usage of COVID-19 modelling — Invited Speaker Mathematical Biology Special Interest Group Workshop	2021
Modelling between-household effective contact and the elimination of COVID-19 in Melbourne, Australia Australia and New Zealand Industrial Applied Mathematics Conference	2021
Mathematical modelling and Victoria's response to COVID-19 — Invited Speaker Victorian ANZIAM Branch Meeting	2020
Australia's experience and the role of modelling in its responses to COVID-19 — Invited Speaker Usher Institute COVID-19 Webinar	2020
Estimating epidemiological quantities for skin sores in remote Australian communities using interval-censored data Australia and New Zealand Industrial Applied Mathematics Conference	2019
Estimating epidemiological quantities for skin sores in remote Australian communities using interval-censored data NSW–ACT ANZIAM Branch Meeting	2018
Coupled models of Group A Streptococcus and Scabies: How likely is eradication? PRISM International Conference	2018
Investigating the dynamics of coupled epidemiological transmission models with application to Group A Streptococcus and Scabies Society for Mathematical Biology Annual Meeting	2018
Investigating the dynamics of coupled models with applications to Group A Streptococcus and Scabies Australia and New Zealand Industrial Applied Mathematics Conference	2018
Quantifying the age of first infection with skin sores in five remote Australian Aboriginal communities Lancefield International Symposium on Streptococci and Streptococcal Diseases	2017
Investigating the dynamics of coupled models with applications to Group A Streptococcus and Scabies PRISM Annual Knowledge Transfer and Training Conference	2017
Constructing mathematical models of Group A Streptococcus and Scabies in remote Australian Indigenous communities — Invited Speaker Zeeman Institute Seminar Series	2017

Developing a model for the transmission and treatment dynamics of scabies infections a high prevalence setting Melbourne-Manchester Joint Workshop	2017
Developing a model for the transmission of Group A Streptococcus Australia and New Zealand Industrial Applied Mathematics Conference	2017
Determining the age of first infection from incomplete data Modelling Emerging Infections and Neglected Tropical Diseases Workshop	2016
Investigating Intervention Intervals for Scabies Infections Australia and New Zealand Industrial Applied Mathematics Conference	2016

Teaching

Lecturer

[ETC5513] Reproducible and Collaborative practices (Chief Examiner)	2024–
[ETC5523] Communicating with Data (Chief Examiner)	2023–
[ETC5512] Wild-Caught Data	2022–2023
[ETC5521] Exploratory Data Analysis	2022

Tutor

[MAST10016] Mathematics for Biomedicine	2016–2019
[MAST30001] Stochastic Modelling	2018

Awards

University of Melbourne Faculty of Engineering and Information Technology Excellence Award in Interdisciplinary Research	2021
IPAA Spirit of Service Awards – Finalist	2021
Engagement Australia Excellence Awards — Outstanding Engagement for Research Impact — Finalist	2021
Top Poster Award — European Congress of Clinical Microbiology & Infectious Diseases	2021
IPAA Victoria Leadership in the Public Sector Awards — Finalist	2021
Best PhD Student Presentation – PRISM² Annual Conference	2017
Applied Probability Trust Prize for best Applied Mathematics Postgraduate Thesis	2016
Australian Postgraduate Award	2015
Dean’s Commendation for Thesis Excellence	2015

Academic Service & Community Engagement

Equity, Diversity & Social Inclusion Committee Department representative	2024 –
SPECTRUM Annual Meeting Organising committee	2024
SPARK Short Course in Mathematical Diseases Modelling — OUCRU Facilitator	2023
Maths in Industry Study Group — NSW Health Moderator	2023
WOMBAT Communicating with Data Workshop Organising Committee	2023
Australian and New Zealand Industrial and Applied Mathematics Executive Committee Treasurer	2022–
Australian and New Zealand Industrial and Applied Mathematics Executive Committee Early Career Representative	2021–2022
SPECTRUM-SPARK Early Career Researcher Committee Chair	2022–
SPARK Short Course in Mathematical Diseases Modelling – Mahidol University Facilitator	2022
Research Tools Workshop in R Facilitator	2022
Mathematical Biology Special Interest Group Treasurer	2019–2022
ANZIAM 2021 Conference Organising Committee (Treasurer)	2020–2021
Computational Biology Research Initiative – The University of Melbourne Postgraduate Representative	2017
Computational Biology Postgraduate Sports Group – The University of Melbourne Secretary	2017–2018
Maths in Industry Study Group Participant	2017, 2018, 2019
The ConocoPhilips Science Experience – The University of Melbourne Activity Organiser	2016–2018
Mathematicians in Schools – CSIRO Project Supervisor/Mentor	2016–2018
Reviewer PLoS Computational Biology; Scientific Reports; Journal of Applied Mathematics; Journal of Statistical Software; Epidemiology & Infection; Mathematics; Medical Journal of Australia; International Tropical Health; Journal of Antimicrobial Resistance; The R Journal	

Professional Memberships

Australian and New Zealand Industrial and Applied Mathematics
Including the Mathematical Biology Special Interest Group

2015–

Australian Mathematics Society

2015–