

Curriculum Vitae

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

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| 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

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| 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 | 2015 — 2019 |

Publications

- 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>
- 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>
- Lydeamore, M. J., Donker, T., Wu, D., Gorrie, C., Turner, A., Easton, M., Hennessey, D., Geard, N., Howden, B. P., Cooper, B. S., Wilson, A., Peleg, A. Y., & Stewardson, A. J. (2024). Carbapenemase-producing *Enterobacteriales* colonisation status does not lead to more frequent admissions: A linked patient study (p. 2024.01.09.24300945). medRxiv. <https://doi.org/10.1101/2024.01.09.24300945>
- 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 (p. 2024.04.22.24305704). medRxiv. <https://doi.org/10.1101/2024.04.22.24305704>
- 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 (p. 2024.05.14.24307386). medRxiv. <https://doi.org/10.1101/2024.05.14.24307386>
- Lydeamore, M. J., Wu, D., Donker, T., Gorrie, C., Higgs, C. K., Easton, M., Hennessey, 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 a mild reduction in required hospital beds (p. 2024.07.04.24309973). medRxiv. <https://doi.org/10.1101/2024.07.04.24309973>
- 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>
- 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 (p. 2023.11.14.23298536). medRxiv. <https://doi.org/10.1101/2023.11.14.23298536>
- 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>
- 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>
- Conway, E., Walker, C., Baker, C., Lydeamore, M., Ryan, G. E., Campbell, T., Miller, J. C., Yeung, M., Kabashima, G., Wood, J., Rebuli, N., McCaw, J. M., McVernon, J., Golding, N., Price, D. J., & Shearer, F. M. (2022). COVID-19 vaccine coverage targets to inform reopening plans in a low incidence setting (p. 2022.12.04.22282996). medRxiv. <https://doi.org/10.1101/2022.12.04.22282996>

- 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*.
- 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>
- 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.
- 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>
- 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>
- Lydeamore, M. J., Campbell, P. T., Price, D. J., Wu, Y., Marcato, A. J., Cuningham, 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>
- Cuningham, 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. (2018). *Mechanistic and statistical models of skin disease transmission*.
- Lydeamore, M. J., Campbell, P. T., Cuningham, 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., 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>
- Vino, 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

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| Modelling To Support Australia’s Resilience to and Preparedness for Omicron And Future Sars-Cov-2 Variants | 2024 |
| Commonwealth Government of Australia Awarded value: \$80,059 | |
| Contractual Partner to Conduct Research on Healthcare-Associated Infection Rates in Phillippine Hospitals | 2023 |
| World Health Organisation Phillippines Awarded value: \$72,078 | |
| Centre of Western Public Health Unit | 2023 |
| Contract Research Awarded value: \$25,000 | |
| Extending and comparing methods for projecting social contact matrices | 2022 |
| SPECTRUM/SPARK Seed Funding Awarded value: \$19,438 | |
| Quantifying longitudinal relationships between community mobility and COVID-19 case incidence in west metropolitan Melbourne | 2022 |
| SPECTRUM/SPARK Seed Funding Awarded value: \$19,896 | |
| Modelling to support Australia’s national plan for COVID-19 | 2021 |
| Commonwealth Government of Australia Awarded value: \$147,536 | |
| Modelling to support Australia’s transition to ‘COVID-normal’ | 2021 |
| Australian Office of Health Protection Awarded value: \$25,620 | |
| Conference presentations and contributed talks | |
| Generating synthetic contact matrices using open-source data | 2024 |
| Australia and New Zealand Industrial Applied Mathematics Conference | |
| Data-Driven Insights into Healthcare Challenges: Two Case Studies — Invited | 2023 |
| Speaker Universitätsklinikum Freiburg Seminar Series | |
| Data-Driven Insights into Healthcare Challenges: Two Case Studies | 2023 |
| UNSW Australia Statistics & Data Science Seminar | |
| Burden of healthcare associated infections in Australia | 2022 |
| Australia and New Zealand Industrial Applied Mathematics Conference | |
| Exponential Random Graph Models and CPE transmission — Invited Speaker | 2021 |
| Melbourne Mathematical Biology Seminar Series | |
| Mathematical modelling for COVID-19 in Victoria, Australia — Invited Speaker | 2021 |
| Math for Industry Forum, Vietnam | |
| The associations between transmission of CPE and ward connectivity: a network analysis | 2021 |
| Australasian Society for Infectious Diseases Annual Scientific Meeting | |
| The burden of healthcare acquired infections in Australian public hospitals | 2021 |
| Australasian Society for Infectious Diseases Annual Scientific Meeting | |

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| 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 Victorian ANZIAM Branch Meeting — Invited Speaker | 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

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| [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

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

Awards

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|---|------|
| 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

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| 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 |

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| 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

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| Australian and New Zealand Industrial and Applied Mathematics Including the Mathematical Biology Special Interest Group | 2015– |
| Australian Mathematics Society | 2015– |