Curriculum Vitae

Dr Michael Lydeamore
Department of Econometrics and Business Statistics
Monash University

Email: michael.lydeamore@monash.edu

Appointments Held

Senior Lecturer - Econometrics and Business Statistics — 2021 —
Monash University

COVID-19 Modelling & Forecasting Lead Manager, Analytics — 2020
Department of Health and Human Services, Victoria

Postdoctoral Research Fellow — 2019 — 2021
Monash University

Honorary Team Member — 2019 –
SaferCare Victoria

Honorary Research Fellow — 2019 –
Alfred Health

Research Fellow — 2018 — 2019
The Kirby Institute, University of New South Wales

Education

Doctor of Philosophy – Applied Mathematics — 2015 — 2019
The University of Melbourne
Thesis title: Mechanistic and statistical models of skin disease transmission

Masters of Philosophy – Applied Mathematics — 2013 — 2014
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

Bachelor of Mathematical Sciences — 2015 — 2019
The University of Adelaide
Graduated with a double major in applied and pure mathematics

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

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

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., 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 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 — 2024
World Health Organisation
Awarded value: $8,157

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

Networks of networks in infectious diseases modelling — Panelist Infectious Diseases Modelling Conference — 2024

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 Speaker Universitätsklinikum Freiburg Seminar Series — 2023

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 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 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

Decision Making and Mathematical Biology - Victoria's usage of COVID-19 modelling — Invited Speaker 2021
Mathematical Biology Special Interest Group Workshop

Modelling between-household effective contact and the elimination of COVID-19 in Melbourne, Australia 2021
Australia and New Zealand Industrial Applied Mathematics Conference

Mathematical modelling and Victoria's response to COVID-19 2020
Victorian ANZIAM Branch Meeting — Invited Speaker

Australia's experience and the role of modelling in its responses to COVID-19 — Invited Speaker 2020
Usher Institute COVID-19 Webinar

Estimating epidemiological quantities for skin sores in remote Australian communities using interval-censored data 2019
Australia and New Zealand Industrial Applied Mathematics Conference

Estimating epidemiological quantities for skin sores in remote Australian communities using interval-censored data 2018
NSW–ACT ANZIAM Branch Meeting

Coupled models of Group A Streptococcus and Scabies: How likely is eradication? 2018
PRISM International Conference

Investigating the dynamics of coupled epidemiological transmission models with application to Group A Streptococcus and Scabies 2018
Society for Mathematical Biology Annual Meeting

Investigating the dynamics of coupled models with applications to Group A Streptococcus and Scabies 2018
Australia and New Zealand Industrial Applied Mathematics Conference

Quantifying the age of first infection with skin sores in five remote Australian Aboriginal communities 2017
Lancefield International Symposium on Streptococci and Streptococcal Diseases

Investigating the dynamics of coupled models with applications to Group A Streptococcus and Scabies 2017
PRISM Annual Knowledge Transfer and Training Conference

Constructing mathematical models of Group A Streptococcus and Scabies in remote Australian Indigenous communities — Invited Speaker 2017
Zeeman Institute Seminar Series

Developing a model for the transmission and treatment dynamics of scabies infections a high prevalence setting 2017
Melbourne-Manchester Joint Workshop

Developing a model for the transmission of Group A Streptococcus 2017
Australia and New Zealand Industrial Applied Mathematics Conference

Determining the age of first infection from incomplete data 2016
Modelling Emerging Infections and Neglected Tropical Diseases Workshop

Investigating Intervention Intervals for Scabies Infections 2016
Australia and New Zealand Industrial Applied Mathematics Conference

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 – PRISM^2 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 Engagment

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 Comptuational Biology; Scientific Reports; Journal of Applied Mathematics; Journal of Statistical Software; Epidemiology & Infection; Mathematics; Medial Journal of Australia; International Tropical Health; Journal of Antimicrobial Resistance; The R Journal

Professional Memberships

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

Australian Mathematics Society 2015–