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
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
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 Enterobacterales 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

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

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

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
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

[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

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 Including the Mathematical Biology Special Interest Group	2015–
Australian Mathematics Society	2015–