

# Curriculum Vitae

Dr Michael Lydeamore Department of Econometrics and Business Statistics Monash University

Email: michael.lydeamore@monash.edu

## Appointments Held

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

## Education

<b>Doctor of Philosophy – Applied Mathematics</b> The University of Melbourne Thesis title: Mechanistic and statistical models of skin disease transmission	2015 — 2019
<b>Masters of Philosophy – Applied Mathematics</b> 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
<b>Bachelor of Mathematical Sciences</b> 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., Mavee, 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/ajph/76.3.547>

[//doi.org/10.1093/jac/dkaa506](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

### **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

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

<b>Mathematical modelling and Victoria's response to COVID-19</b> Victorian ANZIAM Branch Meeting — Invited Speaker	2020
<b>Australia's experience and the role of modelling in its responses to COVID-19</b> — Invited Speaker Usher Institute COVID-19 Webinar	2020
<b>Estimating epidemiological quantities for skin sores in remote Australian communities using interval-censored data</b> Australia and New Zealand Industrial Applied Mathematics Conference	2019
<b>Estimating epidemiological quantities for skin sores in remote Australian communities using interval-censored data</b> NSW–ACT ANZIAM Branch Meeting	2018
<b>Coupled models of Group A Streptococcus and Scabies: How likely is eradication?</b> PRISM International Conference	2018
<b>Investigating the dynamics of coupled epidemiological transmission models with application to Group A Streptococcus and Scabies</b> Society for Mathematical Biology Annual Meeting	2018
<b>Investigating the dynamics of coupled models with applications to Group A Streptococcus and Scabies</b> Australia and New Zealand Industrial Applied Mathematics Conference	2018
<b>Quantifying the age of first infection with skin sores in five remote Australian Aboriginal communities</b> Lancefield International Symposium on Streptococci and Streptococcal Diseases	2017
<b>Investigating the dynamics of coupled models with applications to Group A Streptococcus and Scabies</b> PRISM Annual Knowledge Transfer and Training Conference	2017
<b>Constructing mathematical models of Group A Streptococcus and Scabies in remote Australian Indigenous communities</b> — Invited Speaker Zeeman Institute Seminar Series	2017
<b>Developing a model for the transmission and treatment dynamics of scabies infections a high prevalence setting</b> Melbourne-Manchester Joint Workshop	2017
<b>Developing a model for the transmission of Group A Streptococcus</b> Australia and New Zealand Industrial Applied Mathematics Conference	2017
<b>Determining the age of first infection from incomplete data</b> Modelling Emerging Infections and Neglected Tropical Diseases Workshop	2016
<b>Investigating Intervention Intervals for Scabies Infections</b> 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 <sup>2</sup> 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

<b>SPECTRUM-SPARK Early Career Researcher Committee</b> Chair	2022–
<b>SPARK Short Course in Mathematical Diseases Modelling</b> – Mahidol University Facilitator	2022
<b>Research Tools Workshop in R</b> Facilitator	2022
<b>Mathematical Biology Special Interest Group</b> Treasurer	2019–2022
<b>ANZIAM 2021 Conference</b> Organising Committee (Treasurer)	2020–2021
<b>Computational Biology Research Initiative</b> – The University of Melbourne Postgraduate Representative	2017
<b>Computational Biology Postgraduate Sports Group</b> – The University of Melbourne Secretary	2017–2018
<b>Maths in Industry Study Group</b> Participant	2017, 2018, 2019
<b>The ConocoPhilips Science Experience</b> – The University of Melbourne Activity Organiser	2016–2018
<b>Mathematicians in Schools</b> – CSIRO Project Supervisor/Mentor	2016–2018
<b>Reviewer</b> 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

<b>Australian and New Zealand Industrial and Applied Mathematics</b> Including the Mathematical Biology Special Interest Group	2015–
<b>Australian Mathematics Society</b>	2015–