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

* **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*. medRxiv. https://doi.org/10.1101/2024.07.04.24309973
* 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.**, 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., 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.**, 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., 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.** (2018). *Mechanistic and statistical models of skin disease transmission*. http://minerva-access.unimelb.edu.au/handle/11343/221232
* 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

**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 – PRISM 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**  
Including the Mathematical Biology Special Interest Group

2015–

**Australian Mathematics Society**

2015–