

Liam Brierley

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Current Employment:

MRC Skills Development Fellow, University of Liverpool

Oct 2019 – present

Education:

PGCert Academic Practice in Higher Education, Coventry University

2018 – 2019

PhD, University of Edinburgh

2012 – 2016

Thesis: 'The ecology of emerging diseases: virulence and transmissibility of human RNA viruses'

Supervisors: Dr. Amy Pedersen, Prof. Mark Woolhouse; Funded by NERC.

Synopsis: Using systematic data collection and statistical modelling methods to investigate dynamics surrounding zoonotic host shifts of RNA viruses and subsequent emergence in humans. Key research questions include which viral traits are associated with risk of virulence in humans, how human transmissibility develops during emergence, and the relationship between emergence and nonhuman host diversity, specificity and ecology.

- Supervised research project design, data collection, data analysis and write-up of one Masters project and four Honours projects, one of which was responsible for as the primary supervisor.

MSc Modern Epidemiology (Distinction), Imperial College London

2010 – 2011

- Modules included Infectious Disease Modelling, Advanced Statistical Modelling, Bayesian and Spatial Modelling, Outbreak Investigation.
- Thesis: 'Bats as viral hosts, from taxonomic and spatial perspectives'
Supervisor: Prof. Kate Jones (Institute of Zoology, Zoological Society of London)
- Conducted comparative analysis of viral diversity and zoonosis risk between mammal taxa, and compiled distribution data and spatial regression of drivers of zoonotic bat virus transmission.

MA (Hons) Natural Sciences (Class I), Magdalene College, University of Cambridge

2007 – 2010

- Final year specialisation in Zoology, modules included Population Biology, Ecology, Pathology.
- Dissertation: 'Rodent species richness as a risk factor for zoonotic infectious disease emergence'.

Previous Employment:

Lecturer in Statistics, Coventry University

2017 – 2019

- Developed and delivered lecture, practical and assessment material for final year undergraduate module 'Advanced Topics in Statistics', covering generalised linear models/mixed-effects models.
- Supervised four final year undergraduate research projects and mentored as personal tutor.
- Contributed to and delivered workshops/short course teaching in a variety of statistical topics.
- Supported staff research and undergraduate and postgraduate student learning via drop-ins, appointments or consultations for statistics expertise in university Statistics Advisory Service.

Biostatistician/Epidemiologist, University of Edinburgh

Feb 2017 – Aug 2017

- Extracted and manipulated data from large relational database of electronic health records.
- Developed protocols and statistical analyses of longitudinal pharmacological and biometric data.

Research Assistant, Institute of Zoology, Zoological Society of London

2011 – 2012

- Authored manuscript extending Masters thesis, and compiled progress reports for funders.
- Responsible for maintaining emerging disease event database and authored report on updates.

Awards/Grants:

- MRC Skills Development Fellowship (3 years) Liverpool, 2019 – 2022
- NERC PhD Doctoral Training Award (3.5 years) Edinburgh, 2012 – 2015
- MSc Modern Epidemiology Dissertation Prize Imperial, 2011
- Santander UK Nationals' Masters Scholarship (£5000 GBP) Imperial, 2010
- Thomas Wall Trust Award (£1000 GBP) 2010
- Bundy Scholarship Magdalene College, Cambridge, 2010
- Christie Prize for Natural Sciences Magdalene College, Cambridge, 2010

Wider Professional Involvement:

- Reviewer for *Scientific Reports*, *Proceedings of the Royal Society B: Biological Sciences*, *Global Ecology and Biogeography*, *Vector-Borne and Zoonotic Diseases*, *EcoHealth*, *Institute for Laboratory Animal Research*.
- Fellow of the Royal Statistical Society and member of the British Ecological Society.
- Fellow of the Higher Education Academy.

Publications:

Brierley, L., Pedersen, A.B., and Woolhouse, M.E.J. (in press). Tissue tropism and transmission ecology predict virulence of human RNA viruses. *PLoS Biology*.

McGurnaghan, S.J., **Brierley, L.**, Caparrotta, T.M., McKeigue, P.M., Blackbourn, L.A.K., Wild, S.H., Leese, G., McCrimmon, R.J., McKnight, J.A., Pearson, E.R., Petrie, J.R., Sattar, N. and Colhoun, H.M. 2019. The effect of dapagliflozin on glycaemic control and other cardiovascular disease risk factors in type 2 diabetes mellitus patients: a real-world observational study. *Diabetologia*, 62(4): 621-632.

Woolhouse, M.E.J., and **Brierley, L.** 2018. Epidemiological characteristics of human-infective RNA viruses. *Scientific Data*, 5: 180017.

Woolhouse, M.E.J., **Brierley, L.**, McCaffery, C., and Lycett, S. 2016. Assessing the epidemic potential of RNA and DNA viruses. *Emerging Infectious Diseases*, 22(12): 2037-2044.

Brierley, L., Vonhof, M.J., Olival, K.J., Daszak, P. and Jones, K.E. 2016. Quantifying global drivers of zoonotic bat viruses: a process-based perspective. *The American Naturalist*, 187(2): E53-E64.

Woolhouse, M.E.J., Adair, K. and **Brierley, L.** 2013. RNA viruses: a case study of the biology of emerging infectious diseases. *Microbiology Spectrum*, 1: OH-0001-2012.

Grace, D., Mutua, F., Ochungo, P., Kruska, R., Jones, K., **Brierley, L.**, Lapar, L., Said, M., Herrero, M., Phuc, P.M., Thao, N.B., Akuku, I. and Ogutu, F. 2012. Mapping of poverty and likely zoonoses hotspots. Zoonoses Project 4. Report to the UK Department for International Development. Nairobi, Kenya: ILRI.

Manuscripts:

Lu, L., **Brierley, L.**, Robertson, G., Zhang, F., Lycett, S., Smith, D., Simmonds, P., and Woolhouse, M.E.J. (in review). Evolutionary origins of epidemic potential among human RNA viruses. *Nature Ecology & Evolution*.

Zhang, F., Chase-Topping, M., Guo, C-G., van Bunnik, B.A.D., **Brierley, L.**, and Woolhouse, M.E.J. (submitted). Global discovery of human-infective RNA viruses: a modelling analysis.

Conference Presentations:

- Institute of Biomedical Science Congress 2019, Birmingham. 22 - 25 Sep 2019
Invited oral presentation: 'Insights into the future: emerging viruses'
- British Society for Ecology Annual Meeting, Birmingham. 17 - 19 Dec 2018
Oral presentation: 'Tropism and transmission ecology predict virulence of human RNA viruses'
- 13th Annual Ecology & Evolution of Infectious Disease Conference, Athens, GA. 26 - 29 May 2015
Oral presentation: 'Host range of RNA viruses predicts transmission and virulence of human infections'
- British Society for Parasitology Spring Meeting, Liverpool. 16 - 18 Apr 2015
Oral presentation: 'Host range of RNA viruses predicts transmission and virulence of human infections'
- 2nd Edinburgh Ecology Network Symposium, Edinburgh. 27 Feb 2015
Invited oral presentation: 'Can viral ecology predict virulence of human RNA viruses?'
- From viral genotype to phenotype (5th Boyd Orr Symposium), Glasgow. 23 Oct 2014
Invited oral presentation: 'Ecological risk factors for virulence in human RNA viruses'
- European Wildlife Disease Association Conference, Edinburgh. 26 - 29 Aug 2014
Oral presentation: 'Are threats to wild species associated with virus sharing with humans?'
- From emerging to pandemic viruses (Conférences Jacques Monod), Roscoff. 2 - 6 Apr 2014
Poster presentation.
- Epidemics4 (Elsevier), Amsterdam. 19 - 22 Nov 2013
Poster presentation.