

# Dr. David Hodgson

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## EDUCATION

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2020	PhD	University College London, Mathematical modelling and cost-effectiveness of potential RSV intervention programmes
2015	MRes	University College London, Modelling Biological Complexity (Distinction)
2014	MSci	Durham University, Biophysical Sciences (Distinction)
2013	BSc	University College London, Mathematics (First Class)

## WORK EXPERIENCE

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2020–Present	Research Fellow, London School of Hygiene and Tropical Medicine
2019–2020	Senior Mathematical Modeller, Public Health England

## GRANTS AND AWARDS

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2024–2025	ECR EPH Fellowship	Principal Investigator (1.5 FTE) + £10,000
2023–24	Wellcome Trust Ideathon grant	Principal Investigator Grant prize won at the Wellcome Ideathon (£100,000)
2023	FluLab/Open Science Fellowship	Support the adoption of open science practices within the influenza research community (\$2,000)

## TEACHING

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2023–Present	Module Organiser	Modelling and the Dynamics of Infectious Diseases (EPM302)
2024–Present	Lecturer	Infectious Disease Epidemiology; Introduction to Immunology
2023–Present	Course tutor	Introduction to R
2023–2024	Course tutor	Modern Techniques in Modelling (Short Course)
2022–Present	Course tutor	Decision Health Science (1606)
2020–21	Course tutor	Statistical Methods for Epidemiology (2402)
2020–2023	Course tutor	Modelling and the Dynamics of Infectious Diseases (EPM302) - Involved in Decolonisation of course materials

## ACADEMIC SUPERVISION AND MANAGEMENT

### *Post-docs and RSEs*

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2024–Present	Dr. Alex Hill	Research Software Engineer (funded by Wellcome Trust Ideathon grant)
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### *PhD students*

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2024– Present Clara Birgitta (MRC LID) Modelling the Disorganised Ecology of Post-pandemic Respiratory Viruses: Understanding Seasonality

#### Master's Students

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2022–23	MSc summer projects	Jeun Nin Woon and Yonas Gebrecherkos
2021–22	MSc summer projects	Rhys Wenlock and Ayaka Monoi
2020–21	MSc summer projects	Victor Gitman and Siddhartha Giri

#### PLENARY AND INVITED TALKS

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2023 October	<i>Lessons learnt from modelling and cost-effectiveness of RSV transmission. World Vaccine Congress Europe.</i>
2023 September	<i>Cost-effectiveness of maternal vaccination and monoclonal antibodies against RSV disease. 17<sup>th</sup> Vaccine Congress.</i>
2023 May	PROMISE GAM: RSV OA modelling consortium
2023 April	World Immunisation Week at the Vaccine Center LSHTM

#### ADVISORY TO NITAGs

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2024 March	AGATI RSV modelling meeting
2023 July	NACI RSV paediatric modelling meeting
2023 July	AGATI RSV modelling meeting
2023 June	JCVI June meeting
2023 May	JCVI RSV subcommittee meeting
2023 Feb	JCVI RSV subcommittee meeting
2022 Oct	JCVI October meeting

#### SELECTED TALKS/POSTERS

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2024 October	ISIRV OPTIONS XII (talk and poster)
2023 November	Epidemics 9 (poster)
2023 November	Hong Kong Immunity to Respiratory Diseases Conference
2023 September	European Scientific Working group on Influenza 2023
2023 September	IDDCConf (poster)
2023 June	London Infection Postdoc Network
2023 March	ISIRV Correlates of Protection for Next generation of Influenza vaccines (poster)
2023 Feb	ReSViNet 2023 Conference (poster)
2023 Feb	JCVI RSV subcommittee meeting
2022 Sep	ISIRV OPTIONS XI (withdrew due to illness)

## SEMINARS

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2024 May	WHO Collaborating Center for Reference and Research on Influenza Monthly Meeting
2023 November	MEEV monthly meeting
2023 June	MEEV monthly meeting
2022 Dec	WHO Collaborating Center for Reference and Research on Influenza Monthly Meeting
2022 Aug	CMMID RSV special
2021 Jan	CMMID COVID-19 working group meeting
2018 Nov	Imperial College London IDE seminar series

## INTERNAL CONTRIBUTION

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2024– Present	Volunteer first aider	Volunteer first aider for EPH
2024– Present	Decolonisation the Curriculum Facilitator	Facilitator for decolonisation of all summer project taken at LSHTM.
2024	CMMID Comp and Inference lead	Theme leader for computation and Inference in CMMID
2023	CMMID ECR lead	Organiser for the Early Career Researchers in CMMID. Duties involved: organising monthly meetings, chairing conferences sessions, working with CMMID management committee  January ECR meeting — Discussion on UCU strikes  April ECR meeting — Open Science
2023	CMMID social lead	Organising social events for the CMMID group

I have also been involved in recruitment and sat on interview panels for multiple positions for new hire sin CMMID.

## OUTREACH

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2021-2022: Public engagement at Graveney School Tooting. Intro to infectious disease modelling, given to year 12 students.

2023: Public engagement at Charter School North Dulwich. Intro to infectious disease modelling, given to year 12 students.

## PEER REVIEWED PUBLICATIONS

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### Pre-prints

24. **David Hodgson**, James Hay, Adam Kucharski. Modelling serological data using reversible jump Markov chain Monte Carlo. OSF Preprints. <https://osf.io/preprints/osf/cpd7j>

### Under Review

23. Hodgson, David, Yi Liu, Louise Carolan, Siddhartha Mahanty, Kanta Subbarao, Sheena G. Sullivan, Annette Fox, and Adam Kucharski. 2024. "Memory B Cell Proliferation Drives Differences in Neutralising Responses between ChAdOx1 and BNT162b2 SARS-CoV-2 Vaccines." medRxiv: The Preprint Server for Health Sciences, July, 2024.07.11.24310221.

22. HODGSON D, Sánchez-Ovando S, Carolan L, Liu Y, Hadiprodjo AJ, Fox A, Sullivan SG, KUCHARSKI AJ; Post-vaccine HAI antibody kinetics are driven by pre-vaccination HAI titre and vaccine history. (2024)

[10.1101/2024.01.24.24301614](https://doi.org/10.1101/2024.01.24.24301614).

*Published*

21. Krauer, Fabienne, Felix Guenther, Marina Treskova-Schwarzbach, Viktoria Schoenfeld, Mihaly Koltai, Mark Jit, David Hodgson, et al. 2024. "Effectiveness and Efficiency of Immunisation Strategies to Prevent RSV among Infants and Older Adults in Germany: A Modelling Study." BMC Medicine 22 (1): 478.

20. Sullivan, Sheena, Arseniy Khvorov, Louise Carolan, Leslie Dowson, Jessica Hadiprodjo, Stephany Sánchez-Ovando, Yi Liu, et al. 2024. "Antibody Responses against Influenza A Decline with Successive Years of Annual Influenza Vaccination: Results from an Australian Healthcare Worker Cohort." Research Square, September. <https://doi.org/10.21203/rs.3.rs-4854923/v1>.

19. Russell, Timothy W., Hermaleigh Townsley, Joel Hellewell, Joshua Gahir, Marianne Shawe-Taylor, David Greenwood, David Hodgson, et al. 2024. "Real-Time Estimation of Immunological Responses against Emerging SARS-CoV-2 Variants in the UK: A Mathematical Modelling Study." The Lancet Infectious Diseases, September. [https://doi.org/10.1016/S1473-3099\(24\)00484-5](https://doi.org/10.1016/S1473-3099(24)00484-5).

18. Sheikh Jarju; Rhys Wenlock; Madikoi Danso; Dawda Jobe; Ya Jankey Jagne; Alansana Darboe; Michelle Kumado; Yusupha Jallow; Mamlie Touray; Ebrima Ceesay; Hoja Gaye; Biran Gaye; Abdoulie Tunkara; Sheriff Kandeh; Marie Gomes; Ellen-Lena Sylva; Fatoumata Toure; Hailey Hornsby; Benjamin B Lindsey; Martin J Nicklin; Jon R Sayers; Abdul K Sesay; Adam Kucharski; **David Hodgson**; Beate Kampmann; Thushan I de Silva. SARS-CoV-2 incidence and re-infection during Delta and Omicron BA.1 waves in The Gambia: results from a prospective household cohort study in a population with low SARS-CoV-2 vaccine coverage. *Nature Communications*

17. **Hodgson, David**, et al. Protecting infants against RSV disease: an impact and cost-effectiveness comparison of long-acting monoclonal antibodies and maternal vaccination *Lancet Regional Health: Europe*. <https://doi.org/10.1016/j.lanepe.2023.100829>

16. Liu Y, Sánchez-Ovando S, Carolan L, Dowson L, Khvorov A, Jessica Hadiprodjo A, Tseng YY, Delahunty C, Khatami A, Macnish M, Dougherty S, Hagenauer M, Riley KE, Jadhav A, Harvey J, Kaiser M, Mathew S, **Hodgson D**, Leung V, Subbarao K, Cheng AC, Macartney K, Koirala A, Marshall H, Clark J, Blyth CC, Wark P, Kucharski AJ, Sullivan SG, Fox A. Superior immunogenicity of mRNA over adenoviral vectored COVID-19 vaccines reflects B cell dynamics independent of anti-vector immunity: Implications for future pandemic vaccines. *Vaccine*. 2023 Nov 22;41(48):7192-7200. doi: 10.1016/j.vaccine.2023.10.034. Epub 2023 Oct 28. PMID: 37903679.

15. Russell, Timothy W., Hermaleigh Townsley, Sam Abbott, Joel Hellewell, Edward J. Carr, Lloyd A. C. Chapman, Rachael Pung, et al. 2024. "Combined Analyses of Within-Host SARS-CoV-2 Viral Kinetics and Information on Past Exposures to the Virus in a Human Cohort Identifies Intrinsic Differences of Omicron and Delta Variants." *PLoS Biology* 22 (1): e3002463.

14. Gitman V, Moss K, **Hodgson D**. A systematic review and meta-analysis of the effects of non-pharmacological interventions on quality of life in adults with multiple sclerosis. *Eur J Med Res*. 2023 Aug 22;28(1):294. doi: 10.1186/s40001-023-01185-5. PMID: 37608400; PMCID: PMC10463700.
13. Atkins, Katherine and **Hodgson, David**, Vaccination of older adults against RSV: the final pieces of the puzzle, *Clinical Infectious Diseases*, 2023, ciad162, <https://doi.org/10.1093/cid/ciad162>
12. Li X, **Hodgson, David**, Flaig J, Kieffer A, Herring WL, Beyhaghi H, Willem L, Jit M, Bilcke J, Beutels P; REspiratory Syncytial virus Consortium in EUrope (RESCEU) Investigators. Cost-Effectiveness of Respiratory Syncytial Virus Preventive Interventions in Children: A Model Comparison Study. *Value Health*. 2022 Nov 26:S1098-3015(22)04746-5. doi: 10.1016/j.jval.2022.11.014. Epub ahead of print. PMID: 36442831.
11. Atkins, Katherine & **Hodgson, David** & Jit, Mark & Davies, Nicholas. (2022). Evaluating the impact of Respiratory Syncytial Virus immunisation strategies on antibiotic use and drug resistant bacterial infections in England. *Wellcome Open Research*. 7. 286. 10.12688/wellcomeopenres.18183.1.
10. **Hodgson, David** & Koltai, Mihaly & Krauer, Fabienne & Flasche, Stefan & Jit, Mark & Atkins, Katherine. (2022). Optimal Respiratory Syncytial Virus intervention programmes using Nirsevimab in England and Wales. *Vaccine*. 40. 10.1016/j.vaccine.2022.10.041.
9. Koltai, Mihaly & Krauer, Fabienne & **Hodgson, David** & Leeuwen, Edwin & Treskova, Marina & Jit, Mark & Flasche, Stefan. (2022). Determinants of RSV epidemiology following suppression through pandemic contact restrictions. *Epidemics*. 40. 100614. 10.1016/j.epidem.2022.100614.
8. Krauer, Fabienne & Fjelde, Tor & Koltai, Mihaly & **Hodgson, David** & Treskova, Marina & Harvey, Christine & Jit, Mark & Wichmann, Ole & Harder, Thomas & Flasche, Stefan. (2022). Estimating RSV seasonality from pandemic disruptions: a modelling study. 10.1101/2022.06.18.22276591.
7. Colton, Hayley\* & **Hodgson, David\*** & Hornsby, Hailey & Brown, Rebecca & Mckenzie, Joanne & Bradley, Kirsty & James, Cameron & Lindsey, Benjamin & Birch, Sarah & Marsh, Louise & Wood, Steven & Bayley, Martin & Dickson, Gary & James, David & Nicklin, Martin & Sayers, Jon & Zafred, Domen & Rowland-Jones, Sarah & Kudesia, Goura & Collini, Paul. (2022). Risk factors for SARS-CoV-2 seroprevalence following the first pandemic wave in UK healthcare workers in a large NHS Foundation Trust. *Wellcome Open Research*. 6. 220. 10.12688/wellcomeopenres.17143.2.
6. Li, You & **Hodgson, David** & Wang, Xin & Atkins, Katherine & Feikin, Daniel & Nair, Harish. (2021). Respiratory syncytial virus seasonality and prevention strategy planning for passive immunisation of infants in low-income and middle-income countries: a modelling study. *The Lancet. Infectious diseases*. 21. 10.1016/S1473-3099(20)30703-9.
5. **Hodgson, David** & Flasche, Stefan & Jit, Mark & Kucharski, Adam. (2021). The potential for vaccination-induced herd immunity against the SARS-CoV-2 B.1.1.7 variant. *European Communicable Disease Bulletin*. 26. 10.2807/1560-7917.ES.2021.26.20.2100428.
4. **Hodgson, David** & Pebody, Richard & Panovska-Griffiths, Jasmina & Baguelin, Marc & Atkins, Katherine. (2020). Evaluating the next generation of RSV intervention strategies: a mathematical modelling study and cost-effectiveness analysis. *BMC Medicine*. 18. 10.1186/s12916-020-01802-8.
3. **Hodgson, David** & Atkins, Katherine & Baguelin, Marc & Panovska-Griffiths, Jasmina & Thorrington, Dominic & van Hoek, Albert Jan & Zhao, Hongxin & Fragaszy, Ellen & Hayward, Andrew & Pebody, Richard.

(2019). Estimates for quality of life loss due to Respiratory Syncytial Virus. *Influenza and Other Respiratory Viruses*. 14. 10.1111/irv.12686.

2. Mudera, C & Torii, Ryo & **Hodgson, David** & Velliou, Rallia-Iliana. (2018). Modelling multi-scale cell-tissue interaction of tissue-engineered muscle constructs. *Journal of Tissue Engineering*. 9. 10.1177/2041731418787141.

1. **Hodgson, David** & Baguelin, Marc & Leeuwen, Edwin & Panovska-Griffiths, Jasmina & Ramsay, Mary & Pebody, Richard & Atkins, Katherine. (2017). Effect of mass paediatric influenza vaccination on existing influenza vaccination programmes in England and Wales: a modelling and cost-effectiveness analysis. *The Lancet Public Health*. 2. 10.1016/S2468-2667(16)30044-5.

\*Joint first authors.

Also contributed to research articles in the *CMMID COVID-19 Working Group* between 2020 and 2022.

Google Scholar page: <https://scholar.google.com/citations?user=d74gCRYAAAAJ&hl=en>

#### PEER REVIEW

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Reviewer: *Lancet Public Health*, *Nature Communications*, *BMC Medicine*, *Annals of Internal Medicine*, *Vaccine*, *Archives of Virology*, *Philosophical Transactions A*, *PLOS Pathogens*, *AJPM*.