Dr. David Hodgson

david.hodgson@charité.de

<https://github.com/dchodge> | <https://github.com/seroanalytics>

EDUCATION

|  |  |  |
| --- | --- | --- |
| 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

|  |  |
| --- | --- |
| 2025–Present | Researcher, Charité — Universitätsmedizin Berlin |
| 2023–Present | Roster of Consultants for Vaccine R&D for Infectious diseases, WHO |
| 2020–2025 | Research Fellow, London School of Hygiene and Tropical Medicine |
| 2019–2020 | Senior Mathematical Modeller, Public Health England |

GRANTS AND AWARDS

|  |  |  |
| --- | --- | --- |
| 2025 | NIHR PGfAR [NIHR207278] | Co-Investigator (£2,335,752.00) |
| 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

|  |  |  |
| --- | --- | --- |
| 2023–2025 | Module Organiser | Modelling and the Dynamics of Infectious Diseases (EPM302) |
| 2024–2025 | Lecturer | Infectious Disease Epidemiology; Introduction to Immunology |
| 2023–2025 | Course tutor | Introduction to R |
| 2023–2024 | Course tutor | Modern Techniques in Modelling (Short Course) |
| 2022–2025 | Course tutor | Decision Health Science (1606) |
| 2020–2021 | 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*

|  |  |  |
| --- | --- | --- |
| 2024–2025 | Dr. Alex Hill | Research Software Engineer (funded by Wellcome Trust Ideathon grant) |

*PhD students*

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

*Master’s Students*

|  |  |  |
| --- | --- | --- |
| 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

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

ADVISORY TO NITAGs

|  |  |
| --- | --- |
| 2024 March | AGATI RSV modelling meeting |
| 2023 July | NACI RSV paediatric modelling meeting |
| 2023 July | AGATI RSVmodelling 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

|  |  |
| --- | --- |
| 2025 October | ISIRV 4th Correlates of Protection for Next generation of Influenza vaccines |
| 2025 October | European Scientific Working group on Influenza 2025 (talk and poster) |
| 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 | IDDConf (poster) |
| 2023 June | London Infection Postdoc Network |
| 2023 March | ISIRV 3rd 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) |

SEM|NARS

|  |  |
| --- | --- |
| 2025 March | MEEV monthly meeting |
| 2025 March | CMMID ECR meeting |
| 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

|  |  |  |
| --- | --- | --- |
| 2024–2025 | 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 hires in CMMID.

OUTREACH

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.

PUBLICATIONS

*Pre-prints*

28. **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*

27. Wang Q\*, **David Hodgson**\*, Zheng B, Liang H, Zhang S, Leung K, Kucharski A, Lin H, Wang W. Kinetics of antibody and risk of respiratory syncytial virus infection in a longitudinal cohort in Taizhou city, eastern China.

*Published*

26. **Hodgson, David**, Hay J, Jarju S, Jobe D, Wenlock R, de Silva TI, Kucharski AJ *serojump*: A Bayesian tool for inferring infection timing and antibody kinetics from longitudinal serological data. PLOS Computational Biology 21(9): e1013467. <https://doi.org/10.1371/journal.pcbi.1013467>.

25. Jagne YJ, Jobe D, Darboe A, Danso M, Barratt N, Gomez M, Wenlock R, Jarju S, Sylva EL, Touray AF, Toure F, Kumado M, Saso A, Zafred D, Nicklin M, Sayers J, Hornsby H, Lindsey B, Sesay AK, Temperton N, Kucharski A, **Hodgson D,** de Silva T, Kampmann B. Compartmentalised mucosal and blood immunity to SARS-CoV-2 is associated with high seroprevalence before the Delta wave in Africa. Commun Med (Lond). 2025 May 16;5(1):178. doi: 10.1038/s43856-025-00902-x. PMID: 40379979; PMCID: PMC12084339.

24. **Hodgson, David** & Liu, Yi & Carolan, Louise & Mahanty, Siddhartha & Subbarao, Kanta & Fox, Annette & Kucharski, Adam. (2025). Memory B cell proliferation drives differences in neutralising responses between ChAdOx1 and BNT162b2 SARS-CoV-2 vaccines. Frontiers in Immunology. 16. 10.3389/fimmu.2025.1487066.

23. Gebrecherkos Y, **Hodgson D.** Cost-effectiveness of anti-viral treatment for infants with RSV disease in the United Kingdom. Vaccine. 2024 Dec 24;45:126647. doi: 10.1016/j.vaccine.2024.126647. Epub ahead of print. PMID: 39721351.

22. **Hodgson D**, Sánchez-Ovando S, Carolan L, Liu Y, Hadiprodjo AJ, Fox A, Sullivan SG, Kucharski AJ. Quantifying the impact of pre-vaccination titre and vaccination history on influenza vaccine immunogenicity. Vaccine. 2025 Jan 12;44:126579. doi: 10.1016/j.vaccine.2024.126579. Epub 2024 Dec 5. PMID: 39638659.

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, **David Hodgson,** 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>.

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, **David Hodgson** 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*](https://cmmid.github.io/groups/ncov-group.html)between 2020 and 2022.

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

PEER REVIEW

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