1 PERSONAL DETAILS

Name Katharine Sherratt

Department Infectious Disease Epidemiology and Dynamics

Faculty Epidemiology and Population Health

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Qualifications

- 2024 – 2024, PhD, "Collaborative outbreak modelling for decision support: evaluating trade-offs from multi-model combination", London School of Hygiene & Tropical Medicine
- 2017 – 2019, MSc, Epidemiology, London School of Hygiene & Tropical Medicine
- 2012 – 2015, BA, Geography, University College London

Career

LSHTM appointments

- Research Fellow, Infectious Disease Epidemiology and Dynamics (2023 – present)
- Research Assistant, Infectious Disease Epidemiology (2021-03-22 – 2023-01-10)
- Research Assistant, Infectious Disease Epidemiology (2020-05-01 – 2021-03-22)

Non-academic appointments

- Graduate, Wellcome Trust, London, United Kingdom (2015-2018)

2 KNOWLEDGE GENERATION

Research Funding

Independent award, LSHTM COVID-19 Response Fund (2023), £15,000.

- I was awarded three months' salary support through an internal LSHTM fund in recognition of time spent on the COVID-19 response effort. I developed an original research publication investigating methods for effective multi-model combinations.

Co-Investigator, European Centre For Disease Prevention And Control, *"Further development of the COVID-19 Forecasting Hub in autumn and winter 2022-2023 for the advancement of forecasting methods"* (2022-2023), £57,400

- Lead Investigator: Sebastian Funk (LSHTM). Contribution: I led work to develop the European COVID-19 Scenario Hub. This included designing, implementing, and facilitating a major research collaboration to inform European pandemic response, involving up to 20 research groups across Europe interfacing with the European Centre for Disease Prevention and Control.

Co-Investigator, European Centre For Disease Prevention And Control, "Extension to development of a European COVID-19 Forecasting Hub" (2021-2022), £116,593.75

- Lead Investigator: Sebastian Funk (LSHTM). Contribution: I adapted existing infrastructure, including software in R and Python, to create a platform for collating, combining, and evaluating weekly real-time forecasts of COVID-19 outcomes across 32 European countries. I coordinated and analysed forecasts from up to 40 research teams across Europe, collaborating with policy stakeholders, and developed original research evaluating forecast accuracy.

Publications

Journal articles

2025

SHERRATT K, … Abbott S; Improving modelling for epidemic response: a progress update from a community of UK infectious disease modellers. *Journal of the Royal Society Interface,* Forthcoming (2025)

SHERRATT K, Grah R, Prasse B, Becker F, McLean J, ABBOTT S, FUNK S; The influence of model structure and geographic specificity on predictive accuracy among European COVID-19 forecasts. *Medrxiv* (2025) 10.1101/2025.04.10.25325611.

Rao D, Tanveer A, Iftekhar EN, Müller SA, **SHERRATT K**, Röbl K, Carrillo-Bustamante P, Heldt K, Fitzner J, Hanefeld J, FUNK S; The utility of infectious disease modelling in informing policy for outbreak response: a scoping review. *Medrxiv* (2025) 10.1101/2025.03.04.25323088.

2024

SHERRATT K…, ABBOTT S; Improving modelling for epidemic responses: reflections from members of the UK infectious disease modelling community on their experiences during the COVID-19 pandemic. *Wellcome Open Research* (2024) *9*, 12 10.12688/wellcomeopenres.19601.1.

SHERRATT K, … FUNK S; Characterising information gains and losses when collecting multiple epidemic model outputs. *Epidemics* (2024) *47*, 100765 10.1016/j.epidem.2024.100765.

2023

SHERRATT K, … FUNK S; Predictive performance of multi-model ensemble forecasts of COVID-19 across European nations. *eLife* (2023) *12*, e81916 10.7554/elife.81916.

2022

ABBOTT S, **SHERRATT K**, Bosse N, Gruson H, Bracher J, FUNK S; Evaluating an epidemiologically motivated surrogate model of a multi-model ensemble. *Medrxiv* (2022) 10.1101/2022.10.12.22280917.

ABBOTT S, **SHERRATT K**, Gerstung M, FUNK S; Estimation of the test to test distribution as a proxy for generation interval distribution for the Omicron variant in England. *Medrxiv* (2022) 10.1101/2022.01.08.22268920.

Cramer EY,… **SHERRATT K**…, Reich NG; Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the United States. *Proceedings of the National Academy of Sciences of the United States of America* (2022) *119* (15), e2113561119 10.1073/pnas.2113561119.

MEAKIN S, … **SHERRATT K**, …FUNK S; Comparative assessment of methods for short-term forecasts of COVID-19 hospital admissions in England at the local level. *BMC Medicine* (2022) *20* (1), 86 10.1186/s12916-022-02271-x.

2021

SHERRATT K, ABBOTT S, MEAKIN SR, HELLEWELL J, MUNDAY JD, BOSSE N, CMMID COVID-19 Working Group, JIT M, FUNK S; Exploring surveillance data biases when estimating the reproduction number: with insights into subpopulation transmission of COVID-19 in England. *Philosophical Transactions of the Royal Society of London. Biological Sciences* (2021) *376* (1829), 20200283 10.1098/rstb.2020.0283.

BIGGS JR, Sy AK, **SHERRATT K**…, HIBBERD ML; Estimating the annual dengue force of infection from the age of reporting primary infections across urban centres in endemic countries. *BMC Medicine* (2021) *19* (1), 217 10.1186/s12916-021-02101-6.

MUNDAY JD, **SHERRATT K**, … FUNK S; Implications of the school-household network structure on SARS-CoV-2 transmission under school reopening strategies in England. *Nature Communications* (2021) *12* (1), 1942 10.1038/s41467-021-22213-0.

Palmer J*, **SHERRATT K***, Martin-Nielsen R, Bevan J, GIBBS H, FUNK S, ABBOTT S; covidregionaldata: Subnational data for COVID-19 epidemiology. *Journal of Open Source Software* (2021) *6* (63), 3290-3290 10.21105/joss.03290.

PAVELKA M, Van-Zandvoort K, ABBOTT S, **SHERRATT K**, Majdan M, CMMID COVID-19 working group, FLASCHE S, FUNK S; The impact of population-wide rapid antigen testing on SARS-CoV-2 prevalence in Slovakia. *Science* (2021) *372* (6542), 635-641 10.1126/science.abf9648.

2020

ABBOTT S, HELLEWELL J, Thompson RN, **SHERRATT K**, …FUNK S; Estimating the time-varying reproduction number of SARS-CoV-2 using national and subnational case counts. *Wellcome Open Research* (2020) *5*, 112-112 10.12688/wellcomeopenres.16006.2.

FUNK S, … **SHERRATT K**, …, Whittles LK; Short-term forecasts to inform the response to the Covid-19 epidemic in the UK. *The BMJ* (2020) 10.1101/2020.11.11.20220962.

Ray E, … **SHERRATT K**, …, Reich N; Ensemble Forecasts of Coronavirus Disease 2019 (COVID-19) in the U.S. *Medrxiv* (2020) 10.1101/2020.08.19.20177493.

Gostic KM, … **SHERRATT K**, … Cobey S; Practical considerations for measuring the effective reproductive number, Rt. *PLoS Computational Biology* (2020) *16* (12), e1008409 10.1371/journal.pcbi.1008409.

Dissertation

2024

SHERRATT K; Collaborative outbreak modelling for decision support: evaluating trade-offs from multi-model combination. (2024) 10.17037/PUBS.04674767.

Conferences

SHERRATT K; Collaborative modelling of the future dynamics of COVID-19: the European Forecasting and Scenario Hubs. European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE), Stockholm (2022)

Professional development in research

I have engaged extensively in building collaborations to support my professional research development. This has included contributing to existing modelling consortia in the UK (including COVID-19 response work for SPI-M) and the United States (working closely in the development of the US COVID-19 Forecast and Scenario Hubs). I developed my role into a pivotal position facilitating new modelling consortia in the European COVID-19 Modelling Hubs, together with my supervisor building a collaboration between the European Centre for Disease Prevention and Control and over 60 independent research groups. I have adopted a strongly open and participatory approach to building these networks, specifically supporting non-traditional researchers and the public to engage with modelling work and outputs. This has given me extensive exposure to a global network of modellers, and an understanding of the opportunities and challenges of policy- and public-facing modelling work. I have complemented this with attending research conferences, such as ESCAIDE (2022) or a Royal Society workshop focused on policy-oriented forecasting (2023), and work travel to strengthen collaborations with US based colleagues.

3 EDUCATION

Internal contribution

In 2024, I co-led the creation, design, and teaching of an LSHTM internal course for staff development: "R for Research". In addition to overall course design, I specifically developed new material and teaching for a module covering "Introduction to Best Practices".

I have contributed teaching and assessment to the MSc modules:

- "Health Data Management": teaching assistant, final project marking and moderation (2024)
- "Introduction to R": seminar lead, teaching assistant (2024)
- "Extended Epidemiology": teaching assistant, marker (2023)

I am currently contributing to efforts to convert teaching material into the R language.

External contribution

In 2024 I contributed to developing new material, reviewing, and teaching on the short course: "Nowcasting and Forecasting Infectious Disease Dynamics", European Summer School in Infectious Disease Analysis (Stockholm). I will return to teach on this course in 2025.

4 CITIZENSHIP

Internal contribution

<u>School and Faculty activity</u>

- Co-lead, EPH ENABLE grant (2024 – present), £10,000. I and two colleagues successfully applied for Faculty funding to support a comprehensive review of accessibility needs linked to neurodivergence. This included managing an external auditor to identify needs and best practices, and is in the process of merging with LSHTM-wide priorities for diversity and inclusion via contributions to the central EDI committee. I continue to actively engage in and champion support for disability and inclusivity across LSHTM.
- Independent award: Resource Prize, Centre for Epidemic Preparedness and Response (2023), £500. My work together with two colleagues to develop the European Modelling Hubs during COVID-19 won the Centre for Epidemic Preparedness Resource Prize for developing novel tools for epidemic response. I continue to contribute to the CEPR network, including speaking at events and contributing to student welcome and recruitment to the network.

<u>Department activity</u>

- Lead, CMMID Neurodiversity Network (2022-present). I started and developed a network for peer support for neurodiversity within CMMID, which became the basis for launching wider EDI activity and grant applications around neurodiversity.
- Co-lead, CMMID Outbreak Response theme (2024-present). I co-lead the cross-cutting thematic area of outbreak response within the Centre for Mathematical Modelling of Infectious Disease
- Co-lead, CMMID Forecast Journal Club (2023-present). I started and co-lead a monthly journal club focused on forecasting and predictive modelling.

External contribution

<u>Research consortia participation</u>

- Collaborator, European Respiratory Diseases Modelling Hubs (2024-present)
- Collaborator, US Modelling Hubs Consortium (2021-present)
- Early Career Representative for LSHTM, UK Pandemic Sciences Network (2024)
- Chair, European COVID-19 Scenario Modelling Hub (2022-2023)

- Lead facilitator, European COVID-19 Forecast Modelling Hub (2021-2023)

Open-source software

- Co-lead developer, European COVID-19 Modelling Hubs (2021-2023)
- Contributor, hubVerse: open source tools for collaborative modelling (2021-2023)
- Lead developer, covidregionaldata: R package for subnational COVID-19 data (2020)
- Contributor, EpiNow2: real time outbreak analysis (2020)

Peer review contribution

- JAMA Network Open (2025)
- Epidemics (2024)
- PLOS Computational Biology (2023)
- American Journal of Epidemiology (2022)