Dr Arran Hamlet

Postdoctural Researcher

Global Infectious Disease Analysis, School of Public Health, Imperial College London

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Infectious disease epidemiologist and mathematical modeller with extensive experience in data analysis and statistical/mechanistic modelling to inform outbreak response and public health policy. Strong interest in work within LMIC settings and the programming of interactive tools for data analysis and decision making.

Education

PhD titled 'Yellow fever in South America: The role of environment and host on transmission dynamics'

2017-2020

Imperial College London — *London, United Kingdom*

- Project focused on understanding the epidemiology of yellow fever across South America, with a focus on Brazil, examining the roles of climate, environment and host, using a variety of statistical and mechanistic modelling techniques.
- Awarded 3 Medical Research Council (MRC) Exceptional Training Opportunity awards (total £4,589) and a MRC pump priming award (£23,000) to present results as well as teach, design and run workshops in Brazil and Colombia for Ministries of Health and Universities.
- Supervised by Dr Tini Garske and Professor Neil Ferguson, fully funded by the UK Medical Research Council.

MSc in Epidemiology

2014-2015

Imperial College London — *London, United Kingdom*

- Studied a broad collection of topics before specialising in infectious disease epidemiology.
- Awarded a distinction for my dissertation project titled 'The Seasonality of Yellow Fever in Africa.'

BSc in Biology with Psychology

2011-2014

Queen Mary University of London — *London, United Kingdom*

- Graduated with Upper Second-class Honours (2.1).

Employment

Postdoctural Researcher (Malaria)

Jan 2020-

Imperial College London — *London, United Kingdom*

- Involved in a variety of projects assessing the public health impact of various control measures on the burden of malaria across Africa using mechanistic transmission models.
- Assessed the impact of disruption caused by the SARS-CoV-2 pandemic on malaria control across Africa. Results published Nature Medicine as joint first author.
- Lead researcher on a piece of work commissioned by Abbott and the Presidents Malaria Initiative to assess the potential impact of Anopheles stephensi establishment on malaria transmission in the Horn of Africa.

Postdoctural Researcher (Nigeria COVID-19 response)

Apr 2020-

Imperial College London — *London, United Kingdom*

- Lead researcher for Imperial College London's data analytics and modelling support for Nigeria.
- Conducted analysis to answer specific questions in order to provide evidence for decisions to be made by the Nigerian Presidential Task Force.
- Produced a multitidue of reports as well as regular state-specicic analysis that fed into NCDC, US CDC and UK Department for International Development decision making.
- A number of position papers can be found at https://statehouse.gov.ng/covid19/2020/09/18/evidence-based-guidance-on-measures-to-curb-the-spread-of-covid-19/.

Postdoctural Researcher (COVID-19 response)

Feb 2020-

Imperial College London — *London, United Kingdom*

- Provided technical support and input for numerous reports and projects, with a focus on work in Low-to-Middle-Income Countries (LMIC) and on quantifying the underascertainment of mortality.
- Seconded through the Global Outbreak Alert and Response Network to provide technical support for the WHO in Geneva Feb - Apr 2020.

PhD in Infectious Disease Modelling

Jan 2017 - Jan 2020

Imperial College London — *London, United Kingdom*

- PhD thesis titled 'Yellow fever in South America: The role of environment and host on transmission dynamics'.

Research Assistant

Oct 2015 - Dec 2016

Imperial College London

London, United Kingdom

- Outbreak analysis and response for the 2015-2016 outbreak in Angola and the Democratic Republic of the Congo working with the World Health Organization (WHO).
- Responsible for estimating population-level vaccination coverage across Africa and the development of an open-source tool to explore this information. Currently utilised by researchers and the WHO.

Consultancy

Epidemiologist: COVID-19

Feb 2020 - Apr 2020

World Health Organization

Geneva, Switzerland

- Provided technical support for the WHO in the Health Emergency Information and Risk Assessment (HIM) pillar through GOARN deployment
- Work involved exploring and quantifying mortality, transmission and country specific impacts through data analysis and visualisation in real time as the COVID-19 pandemic unfolded. Aspects of data visualisation acknowledged in https://worldhealthorg.shinyapps.io/covid/.
- Continued to provide adhoc support till Dec 2020.

Epidemiologist: Yellow fever

Jul 2016 - Sep 2016

World Health Organization

Geneva, Switzerland

- Commissioned to produce a report evaluating the risk of outbreaks of yellow fever across Africa as a result of ongoing transmission in Angola and the Democratic Republic of the Congo and the potential for introduction into Asia.

Epidemiologist

Feb 2016 - Mar 2016

Ozygen Systems

London, United Kingdom

- Hired to produce a report on numerous pathogens involved in nosocomial infection and to evaluate the applicability of ozone decontamination technology in UK healthcare settings to limit their spread.

Teaching

PhD Assessor

Oct 2020-

University of São Paulo

São Paulo, Brazil

- Examining progress and assisting with the research of a PhD student's project titled 'Spatio-temporal dynamics of yellow fever in Brazil'.

MSc Dissertation Supervisor

May 2020 - Oct 2020

Imperial College London

London, United Kingdom

- Designed and supervised MSc Epidemiology projects looking at the effect of forest fragmentation on yellow fever in Southern Brazil, and exploring the differences in transmission dynamics between yellow fever, dengue and zika.

Graduate Teaching Assistant

Jan 2017 -

Imperial College London

London, United Kingdom

- Teaching assistant and demonstrator for numerous modules on infectious disease modelling, statistical analysis and epidemiology.

Shortcourse Demonstrator

Sep 2017/Sep 2018/Sep 2019

Imperial College London

London, United Kingdom

- Demonstrator on the departments 'Mathematical modelling for the control of infectious diseases' short course, run since 1990 and designed to teach pubic health professionals about infectious disease modelling.

Shortcourse Demonstrator

Jun 2020

Imperial College London

Bogota, Colombia

- Demonstrator and lecturer on a course coordinated between Imperial College London, Instituto Nacional De Salud and Pontificia Universidad Javeriana Bogota which aimed to give an introduction to infectious disease modelling.

Design and implementation of an online platform for teaching infectious disease modelling

Jan 2019 - Sept 2019

Imperial College London

London, United Kingdom

- Responsible for liasing between programming team and course organisers to design and translate existing practicals from Berkely Madonna to an online web interface running the Odin language.
- Highly successful implementation with the platform now being used for both future shortcourses and the MSc Epidemiology at Imperial College London.

Funding awards

MRC Pump Priming (£23,000) *Nov 2019*

Imperial College London *London, United Kingdom*

- Jointly awarded £23,000 with co-PI Natsuko Imai to run a week long training workshop in Rio de Janeiro focusing on the use of mathematical models in outbreak response and policy in July 2020.
- Course was to be run collaboratively with the Brazilian Ministry of Health and Fundação Oswaldo Cruz (Fiocruz).
- Postponed due to the COVID-19 pandemic.

MRC Exceptional Training Opportunity *Oct 2017/Aug 2018/Jun 2019*

Imperial College London *London, United Kingdom*

- Oct 2017: Awarded £650 to travel to the WHO in Geneva, Switzerland to present my work on yellow fever and discuss with the yellow fever team how my PhD can provide support for their activities.
- Aug 2018: Awarded £2220 to travel to Rio de Janiro and Brasilia, Brazil, and present my results on modelling yellow fever in South America at a meeting co-hosted by the Brazilian Ministry of Health and the Pan American Health Organization, as well as to set up a research collaboration with Fiocruz.
- Jun 2019: Awarded £1719 to travel to Bogota, Colombia to lecture and demonstrate on a course coordinated between Imperial College London, Instituto Nacional De Salud and Pontificia Universidad Javeriana Bogota which aimed to give an introduction to infectious disease modelling.

Presentations

The potential public health consequences of COVID-19 on malaria in Africa *Oct 2020*

London Malaria Network *London, United Kingdom*

Seasonality of agricultural exposure more important than seasonality of climate for predicting yellow fever transmission in Brazil *Nov 2019*

American Society of Tropical Medicine and Hygiene *National Harbor, United States of America*

Statistical and mathematical modelling of yellow fever in South America *Jun 2019*

Outbreak Analysis and Modelling for Public Health *Bogota, Colombia*

Land-use, vegetation and habitat fragmentation as drivers of yellow fever transmission in South America *Feb 2019*

International Conference on One Medicine One Science *Chang Mai, Thailand*

Yellow fever in Brazil - Modelling as a tool to inform outbreak response and public health policy *Nov 2018*

Yellow fever forecasting: Embedding modelling in lessons learnt exercises *Brasilia, Brazil*

Publications

First author publications

A Hamlet, KAM Gaythorpe, T Garske, NM Ferguson *PLoS neglected tropical diseases*

Seasonal and inter-annual drivers of yellow fever transmission in South America *2021*

A Hamlet, K Jean, S Yactayo, J Benzler, L Cibrelus, N Ferguson, T Garske *Vaccine*

POLICI: A web application for visualising and extracting yellow fever vaccination coverage in Africa *2019*

A Hamlet, K Jean, W Perea, S Yactayo, J Biey, M Van Kerkhove, ... *PLoS neglected tropical diseases*

The seasonal influence of climate and environment on yellow fever transmission across Africa *2018*

Selected additional publications

PGT Walker, C Whittaker, OJ Watson, M Baguelin, P Winskill, A Hamlet, ... *Science*

The impact of COVID-19 and strategies for mitigation and suppression in low-and middle-income countries *2020*

E Sherrard-Smith, AB Hogan, A Hamlet, OJ Watson, C Whittaker, ... *Nature medicine*

The potential public health consequences of COVID-19 on malaria in Africa *2020*

KAM Gaythorpe, A Hamlet, L Cibrelus, T Garske, NM Ferguson *Elife*

The effect of climate change on yellow fever disease burden in Africa *2020*

K Jean, A Hamlet, J Benzler, L Cibrelus, KAM Gaythorpe, A Sall, ... *PLoS neglected tropical diseases*

Eliminating yellow fever epidemics in Africa: Vaccine demand forecast and impact modelling *2020*

I Dorigatti, A Hamlet, R Aguas, L Cattarino, A Cori, CA Donnelly, T Garske, ... *Eurosurveillance*

International risk of yellow fever spread from the ongoing outbreak in Brazil, December 2016 to May 2017 *2017*

Selected reports

N Ferguson, D Laydon, G Nedjati Gilani, N Imai, K Ainslie, M Baguelin, ... *MRC Centre for Global Infectious Disease Analysis*

Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand *2020*

S Flaxman, S Mishra, A Gandy, H Unwin, H Coupland, T Mellan, H Zhu, ... *MRC Centre for Global Infectious Disease Analysis*

Report 13: Estimating the number of infections and the impact of non-pharmaceutical interventions on COVID-19 in 11 European countries *2020*

P Walker, C Whittaker, O Watson, M Baguelin, K Ainslie, S Bhatia, S Bhatt, ... *MRC Centre for Global Infectious Disease Analysis*

Report 12: The global impact of COVID-19 and strategies for mitigation and suppression *2020*

NM Ferguson, D Laydon, G Nedjati-Gilani, N Imai, K Ainslie, M Baguelin, ... *MRC Centre for Global Infectious Disease Analysis*

Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand. Imperial College London; 16 March 2020 *2020*

I Dorigatti, L Okell, A Cori, N Imai, M Baguelin, S Bhatia, A Boonyasiri, ... *MRC Centre for Global Infectious Disease Analysis*

Report 4: severity of 2019-novel coronavirus (nCoV) *2020*