

# Dr Arran Hamlet

POSTDOCTORAL RESEARCHER

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

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## 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, and in focus in Brazil, using climate, environment and host using a variety of statistical and mechanistic modelling techniques.
- Awarded 3 Medical Research Council (MRC) Exceptional Training Opportunity awards (total £4589) and an MRC pump priming award (£23,000) to present results as well as teach, design and run workshops in Brazil and Colombia to Ministries of Health and Universities.
- Supervised by Dr Tini Garske and Professor Neil Ferguson and 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

### Postdoctoral 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.

### Postdoctoral Researcher

Jan 2020-

IMPERIAL COLLEGE LONDON

London, United Kingdom

- 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.

### Postdoctoral Researcher (Nigeria COVID-19 response)

Apr 2020-

IMPERIAL COLLEGE LONDON

London, United Kingdom

- Lead researcher for Imperial College London's COVID-19 support for Nigeria working with UCL, the US CDC, Nigerian CDC, Boston Consulting Group and McKinsey, to answer questions related to the epidemiology of COVID-19 in Nigeria, and specific analysis projects to provide evidence for decisions made by the Nigerian Presidential Task Force on COVID-19.
- Produced a multitude of reports as well as regular state-specific 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/>

### Postdoctoral 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

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### 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

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### 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

*September 2017/September*

*2018/September 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 public health professionals about infectious disease modelling.

### Shortcourse Demonstrator

*June 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 liaising 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

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### MRC Pump Priming (£23,000)

*November 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

IMPERIAL COLLEGE LONDON

Oct 2017/Aug 2018/Jun 2019

London, United Kingdom

- October 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.
- August 2018: Awarded £2220 to travel to Rio de Janeiro 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.
- June 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.

## Publications

### FIRST AUTHOR PUBLICATIONS

**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, ...**

REPORT 9: IMPACT OF NON-PHARMACEUTICAL INTERVENTIONS (NPIs) TO REDUCE COVID-19 MORTALITY AND HEALTHCARE DEMAND. IMPERIAL COLLEGE LONDON; 16 MARCH 2020

*MRC Centre for Global Infectious  
Disease Analysis*

2020

**I Dorigatti, L Okell, A Cori, N Imai, M Baguelin, S Bhatia, A Boonyasiri, ...**

REPORT 4: SEVERITY OF 2019-NOVEL CORONAVIRUS (nCoV)

*MRC Centre for Global Infectious  
Disease Analysis*

2020