

Carolin Vegvari

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Education and Employment

Since February 2021	Modelling & Simulation Lead for Oriole Global Health Ltd. (UK-based Public Health Consultancy Firm) Visiting Researcher at the Department of Infectious Disease Epidemiology, Imperial College London, UK
June 2018 – January 2021	Postdoctoral Research Associate in Modelling Elimination of Soil-Transmitted Helminths , Department of Infectious Disease Epidemiology, School of Public Health, Imperial College London
June 2017 – May 2018	Postdoctoral Research Associate in Modelling Antimicrobial Resistance in Gonorrhoea , Department of Infectious Disease Epidemiology, School of Public Health, Imperial College London
June 2016 – May 2017	Postdoctoral Researcher in the Functional Population Genetics Group at the Department of Medical Genetics and Development, University of Geneva, Switzerland
June 2014 – June 2016	Postdoctoral Research Associate in Immunotherapy and Clinical Trial Simulations at the Department of Infectious Disease Epidemiology, School of Public Health, Imperial College London
October 2010 – May 2014	PhD in Biological Anthropology, University of Cambridge, UK Dissertation: Computer simulations of the evolution and diversification of human cultures in their environmental context
October 2009 – September 2010	MPhil in Human Evolutionary Studies , University of Cambridge, UK Dissertation: How does human influence affect the behaviour of wild chimpanzee mothers and offspring? Final grade: High pass
October 2006 – August 2009	BSc Biology , University of Heidelberg, Germany Dissertation: Functional and cell-biological characterisation of a classical cadherin in <i>Nematostella vectensis</i> , Final grade: 1.1
October 2005 – September 2006	Admitted to Medical Course , University of Heidelberg, Germany (transfer to Biology to follow a more research-oriented course)
October 2003 – June 2005	Admitted to study Biological Sciences , Hertford College, University of Oxford, UK (abandoned because of illness)
June 2003	Abitur (school leaving examination at grammar school) Gymnasium Karlsbad, Germany, Average grade: 1.0

Publications

In review

Patel S, Vegvari C *et al.* An analysis of the WHO target goal for soil-transmitted helminths across sub-Saharan Africa. Intended for PLOS Neglected Tropical Diseases.

Patel S, Vegvari C *et al.* A pulse differential equation model of anthelmintic resistance in soil-transmitted helminths. Intended for Journal of Theoretical Biology.

Vinetz J, Appleby LJ, Vegvari C *et al.* Investing in the development of a leptospirosis vaccine. Intended for Frontiers in Tropical Diseases.

Baggaley R, Vegvari C *et al.* Do current maternal health staffing and bed occupancy benchmarks work in practice? Results from a simulation model. Intended for BMJ Global Health.

2022

Anderson RM, ..., Vegvari C. Responding to the cuts in UK AID to neglected tropical diseases control programmes in Africa. Transactions of the Royal Society for Tropical Medicine and Hygiene, in print.

NTD Modelling Consortium. Evaluating and mitigating the potential indirect impact of COVID-19: a modelling study of programme interruptions for seven neglected tropical diseases. Lancet Global Health 10: e1600–11.

2021

Baggaley RF, Vegvari C *et al.* Health economic analyses of latent tuberculosis infection screening and preventive treatment among people living with HIV in lower tuberculosis incidence settings: a systematic review [version 1; peer review: 2 approved with reservations]. Wellcome Open Research 6:51.

Anderson RM, Vegvari C *et al.* The SARS-CoV-2 pandemic: remaining uncertainties in our understanding of the epidemiology and transmission dynamics of the virus, and challenges to be overcome. Interface Focus 11(6): 20210008.

Vegvari C *et al.* Commentary on the use of the reproduction number R during the COVID-19 pandemic. Statistical Methods in Medical Research 9622802211037079.

Vegvari C *et al.* Impact of key assumptions about the population biology of soil-transmitted helminths on the sustainable control of morbidity. Clinical Infectious Diseases 72(S3):S188-S194.

Hardwick RJ, Vegvari C *et al.* Spatial scales in human movement between reservoirs of infection. Journal of Theoretical Biology 524:110726.

Vegvari C *et al.* Deworming women of reproductive age during adolescence and pregnancy: what is the impact on morbidity from soil-transmitted helminths infection? Parasites & Vectors 14(1):220.

<p>2020</p>	<p>Malizia V, Giardina F, Vegvari C et al. Modelling the impact of COVID-19-related control programme interruptions on progress towards the WHO 2030 target for soil-transmitted helminths. <i>Transactions of the Royal Society for Tropical Medicine and Hygiene</i> 115(3):253-260..</p> <p>NIHR Global Health Research Unit on Genomic Surveillance of AMR. Whole-genome sequencing as part of national and international surveillance programmes for antimicrobial resistance: a roadmap. <i>BMJ Global Health</i> 5(11):e002244.</p> <p>Anderson RM, Vegvari C et al. Challenges in creating herd immunity to SARS-CoV-2 infection by mass vaccination. <i>Lancet</i> 396(10263):1614-1616.</p> <p>Vegvari C et al. Using rapid point-of-care tests to inform antibiotic choice to mitigate drug resistance in gonorrhoea. <i>Eurosurveillance</i> 25(43):1900210.</p> <p>Toor J et al. Predicted Impact of COVID-19 on Neglected Tropical Disease Programs and the Opportunity for Innovation. Online ahead of print: ciaa933.</p> <p>NTD Modelling Consortium. The potential impact of programmes interruptions due to COVID-19 on 7 neglected tropical diseases: a modelling-based analysis [version 1; not peer reviewed]. <i>Gates Open Res</i> 2020, 4:115.</p> <p>Anderson RM et al. COVID-19 spread in the UK: the end of the beginning? <i>Lancet</i> 396(10251):587-590.</p> <p>Coffeng L, Malicia V, Vegvari C et al. Impact of different sampling schemes within a fixed budget for decision-making in soil-transmitted helminthiasis control programmes: a bootstrap analysis of multi-country data. <i>Journal of Infectious Diseases</i> 221(Supplement 5):S531-S538.</p> <p>Hardwick RJ, Vegvari C et al. The 'breakpoint' of soil-transmitted helminths with infected human migration. <i>Journal of Theoretical Biology</i> 486:110076.</p>
<p>2019</p>	<p>NTD Modelling Consortium discussion group on soil-transmitted helminths. Insights from quantitative analysis and mathematical modelling on the proposed WHO 2030 goals for soil-transmitted helminths [version 1; peer review: 2 approved]. <i>Gates Open Research</i> 3:1632.</p> <p>Hardwick RJ, Vegvari C et al. The 'breakpoint' in transmission for soil-transmitted helminths: dynamical behaviour near the equilibria and the impact of infected human migration. <i>bioRxiv</i> 619908; doi: https://doi.org/10.1101/619908</p> <p>Vegvari C et al. Human population movement can impede the elimination of soil-transmitted helminth transmission in regions with heterogeneity in mass drug administration coverage and transmission potential between villages: a metapopulation analysis. <i>Parasites & Vectors</i> 12(1):438.</p> <p>Giardina F, Coffeng LE, Farrell SH, Vegvari C et al. Sampling strategies for</p>

	monitoring and evaluation of morbidity targets for soil-transmitted helminths. <i>PLOS Neglected Tropical Diseases</i> 13(6): e0007514.
2018	Werkman M, Toor J, Vegvari C et al. Defining stopping criteria for ending randomized clinical trials that investigate the interruption of transmission of soil-transmitted helminths employing mass drug administration. <i>PLOS Neglected Tropical Diseases</i> 12(10): e0006864.
2017	Lawrence E, Vegvari C et al. 2017. A Systematic review of longitudinal studies which measure Alzheimer’s Disease biomarkers. <i>Journal of Alzheimer’s Disease and Dementia</i> 59(4): 1359–1379.
2016	Vegvari C et al. How can viral dynamics models inform endpoint measures in clinical trials of therapies for acute viral infections? <i>PLOS ONE</i> 11(7):e0158237. Vegvari C et al. Using clinical trial simulators to analyse the sources of variance in clinical trials of novel therapies for acute viral infections. <i>PLOS ONE</i> 11(6):e0156622. Hadjichrysanthou C, Cauët E, Lawrence E, Vegvari C et al. Understanding the within-host dynamics of influenza A virus: from theory to clinical implications. <i>Journal of the Royal Society Interface</i> 13(119).
2014	Vegvari C, Foley RA. High selection pressure promotes increase in cumulative adaptive culture. <i>PLOS ONE</i> 9 (1): e86406. Vegvari C, Foley RA. Environmental and social factors influencing the intensity of competition within and between human groups. In: Traviglia A (Ed.), <i>Across Space and Time. Selected Papers from the 41st Computer Applications and Quantitative Methods in Archaeology Conference</i> . Perth, WA, 25-28 March 2013.
2012	Blog post on the Evolution and Cognition – Research Group Website: <i>What is cultural complexity?</i>
<i>Conferences and Talks</i>	
September 2021	NNN Conference , Breakout Session Lead and Speaker on <i>Strengthening the connection between research and programming to beat NTDs</i> .
February 2021	Invited talk at the London Centre For Neglected Tropical Diseases Annual Conference : <i>Deworming women of reproductive age during adolescence and pregnancy: what is the impact on morbidity from soil-transmitted helminths infection?</i>
November 2020	Posters at the American Society for Tropical Medicine and Hygiene Annual Meeting :

	<i>Optimising drug use to develop sustainable control strategies for soil-transmitted helminths beyond the World Health Organization 2030 goals. Modelling the impact of COVID-19-related control programme interruptions towards the WHO 2030 target for soil-transmitted helminths.</i>
September 2020	Talk at the NNN 2020 Conference : <i>Can deworming at prenatal clinics prevent morbidity from infections with soil-transmitted helminths in women of reproductive age?</i> Lead in workshop <i>Translating research into evidence-based programmes</i>
November 2019	Talk at the American Society for Tropical Medicine and Hygiene Annual Meeting , Washington, D. C.: <i>Relevant spatial scale for evaluation units for elimination programmes for soil-transmitted helminths given geography of settlements and human movement</i>
September 2019	Talk at the European Congress on Tropical Medicine and International Health , Liverpool, UK: <i>Monitoring and evaluation of elimination and morbidity targets for soil-transmitted helminths.</i>
October 2018	Talk at the American Society for Tropical Medicine and Hygiene Annual Meeting , New Orleans, LA: <i>Migration and local movement can impede elimination efforts of soil-transmitted helminths by mass drug administration</i>
August 2018	Poster presentation at the Centers for Disease Control and Prevention Sexually Transmitted Disease Prevention Conference , Washington, DC: <i>Evaluating the optimal placement of the novel antimicrobial gepotidacin in the treatment paradigm for uncomplicated genitourinary gonorrhoea</i>
July 2018	Invited talk at the Wellcome Genome Campus , Hinxton, UK: <i>Optimal strategies for the introduction of novel antibiotics to avoid resistance development</i>
April 2018	Invited talk at the GlaxoSmithKline Global Health Evidence Forum , Stevenage, UK: <i>Mathematical modelling for epidemiology and drug development</i>
January 2017	Presentation at meeting of DIRECT (Diabetes REsearch on patient stratification) consortium, Heathrow, London, UK: <i>Association of gene expression with HbA1c as a marker of glycaemic deterioration</i>
December 2016	Presentation at meeting of DIRECT (Diabetes REsearch on patient stratification) consortium, Mainz, Germany: <i>Biomarkers for predicting the rate of change of HbA1c</i>
September 2015	Clinical Trial Simulations in Alzheimer's Disease Workshop , Imperial College London, UK: <i>Alzheimer's disease: modelling approaches for clinical trial simulations</i>
September 2015	1st International Meeting on Respiratory Pathogens , Singapore <i>Using simple mathematical models to understand the within-host dynamics of</i>

	<i>influenza A virus infection: from theory to clinical implications</i>
March 2013	Computer Applications in Archaeology 2013 , Perth, Australia: <i>Competition and culture change in prehistoric socio-environmental systems</i>
January 2013	Doktorandenkolloquium der Studienstiftung "Ethnizität" , University of Cologne, Germany: <i>Steinzeitethnologie – die Evolution kultureller Gruppengrenzen</i>
January 2013	Unravelling Human Origins Conference , Cambridge, UK: <i>Population pressure and cumulative adaptive culture in Palaeolithic societies</i>
October 2012	Complex Systems in Archaeology Workshop , IBM Visual and Spatial Technology Centre, University of Birmingham: <i>Population pressure promotes cultural complexity</i>
May 2012	Lucy Cavendish College Graduate Seminar , Cambridge: <i>Social simulations and the evolution of human cultures</i>
November 2011	Doktorandenforum der Studienstiftung , Frankfurt, Germany: <i>Simulation sozialer Systeme und der Evolution von Kultur</i>
November 2011	Biological Anthropology Graduate Seminar , Cambridge: <i>Social simulations and the evolution of human cultures</i>
May 2010	Lucy Cavendish College Graduate Seminar , Cambridge: <i>Human influence on the behaviour of chimpanzee mothers and offspring</i>
Professional Activities	
September – December 2020	Report for the Royal Society Science in Emergencies Tasking – COVID (SET-C): SARS-CoV-2 – where do people acquire infection – and ‘who infects whom’? In collaboration with Roy Anderson, Imperial College London.
May – August 2020	Report for the Royal Society Science in Emergencies Tasking – COVID (SET-C): Reproduction number (R) and growth rate (r) of the COVID-19 epidemic in the UK: methods of estimation, data sources, causes of heterogeneity, and use as a guide in policy formulation. With Roy Anderson, Imperial College London.
April 2019 – January 2020	WHO technical note on: Whole-Genome Sequencing for Antimicrobial Resistance Surveillance. In collaboration with David Aanensen from the Centre for Genomic Pathogen Surveillance, Wellcome Genome Campus, Hinxton, UK.
July – August 2019	Epidemiological reports of NTD burden in partner countries and assessment of control programmes for Oriole Global Health as part of consortium with Crown Agents, Abt, KIT for DFID ASCEND project . Reports supported decision on how to distribute funding among partner countries.
December 2018	Designing and presenting workshop session on analysis of age-intensity profiles in STH infections for the DeWorm3 consortium using Stata, Natural

	History Museum, London, UK
October 2018	Epidemiological advisor for Oriole Global Health for bid for management of UK Department for International Development flagship neglected tropical disease programme, ASCEND. Bid was successful.
June 2018	Design of database and storage strategy for a large-scale (1.7 million people) monitoring and evaluation project for Schistosomiasis and soil-transmitted helminths in Ethiopia for Oriole Global Health Ltd., London-based public health consultancy firm.
May – October 2018	Technical writer for National Institute of Health Global Health Research Unit publication on implementing whole-genome sequencing as part of national and international surveillance programmes for antimicrobial resistance.
December 2017 – December 2018	WHO technical note on: <i>Molecular methods for antimicrobial resistance (AMR) diagnostics to enhance the Global Antimicrobial Resistance Surveillance System</i> . In collaboration with David Aanensen from the Centre for Genomic Pathogen Surveillance, Wellcome Genome Campus, Hinxton, UK.
March – April 2017	Analyst on project on identifying pneumococcal serotypes to be added to new expanded vaccine for Oriole Global Health Ltd., London-based public health consultancy firm.
Since November 2016	Collaborator on project <i>Virtual Stone Tools: A Simulation Approach to Prehistoric Lithic Technology and Its Implications for the Evolution of Human Behaviour</i>
May 2016	Developing and organising invited session on <i>Clinical Trial Simulations: The When, Where and What</i> ; Society for Clinical Trials Conference, Montreal, Canada
January 2016	Organiser Workshop on <i>Molecular and Smart Data Approaches for Novel Alzheimer's Disease Therapies</i> , Imperial College London
September 2015	Organiser Workshop on <i>Clinical Trial Simulations in Alzheimer's Disease</i> , Imperial College London
2015 – 2016	Coordinator of the Department of Infectious Diseases Seminar Series
June 2014	Strategic planning advisor, scientific programme team at the <i>Evolution of Innovation Conference</i> in Cambridge
July 2013	Chair, host, scientific programme and talks coordinator at the <i>Relocating Human Origins Conference</i> in Cambridge
March 2013	Developing and chairing session and workshop on <i>Complex Systems Simulation in Archaeology</i> at the CAA 2013, Perth, Australia
2012 - 2013	Representative of Biological Anthropology at the <i>Cambridge Language Sciences Initiative</i>

2011 - 2013	Coordinator of the Biological Anthropology Postgraduate Lunchtime Seminar Series
2010 - 2012	Welfare Officer and Library Officer at Lucy Cavendish College
Teaching	
2011 - 2013	Supervisor for Archaeology & Anthropology Part I – Humans in Biological Perspective (introduction to Biological Anthropology), University of Cambridge, UK
2011 - 2012	Supervisor for BA2 – The human journey (introduction to Palaeoanthropology), University of Cambridge, UK
2007 - 2009	Teaching assistant at first-year zoology practical, University of Heidelberg, Germany
Awards and Scholarships	
2013	Cambridge Philosophical Society Travel Award
2013	Travel Award from “Studienstiftung des deutschen Volkes”
2011 - 2013	PhD scholarship from “Studienstiftung des deutschen Volkes”
2010 - 2013	CHESS (Cambridge Home and European Student Scholarship) Award
2008 - 2010	Undergraduate scholarship from “Studienstiftung des deutschen Volkes”
Outreach	
September 2015	Volunteer at GreenLight4Girls, Imperial College London (initiative to promote careers in STEM subjects to school girls)
July 2013	START Summer Campus (initiative supporting 6 th form students with migration background), St. Peter-Ording, Germany: <ul style="list-style-type: none"> – Cliodynamics – How we can calculate the future from the past
April 2012	Public lecture at the Wesley Methodist Church, Cambridge: <ul style="list-style-type: none"> – Tales of human evolution (general introduction to evolutionary theory and human evolution)
2008 – 2009	Mentoring in Mathematics for volunteering organisation in which university students offer help to pupils that cannot afford paid mentors “Studenten helfen Schülern”, Heidelberg, Germany
Additional Skills	

Computing	Operating systems: Windows, Unix, Mac, Statistics: SPSS, Stata Programming languages: C/C++, R, Python, Matlab, gnuplot, NetLogo High Throughput Computing: HTCondor, LSF, SGE, Microsoft HPC Cluster Manager
Language skills	German: first language English: fluent French: competent
Field work	Archaeological fieldwork in Western Turkana, Kenya, four weeks in August 2011
Expedition medical training programme	1) Far from help – expedition and wilderness medical training (2012) 2) Advanced medicine – Advanced course on expedition and wilderness medical training (2012)