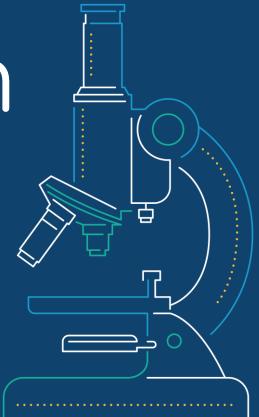


R2HC Ebola Research Findings



OVERVIEW

In response to the Ebola epidemic in West Africa in 2014, R2HC launched an emergency call for short-term research in August 2014. The intention was to fund robust research designed to contribute to the effectiveness of the outbreak response and to draw lessons for dealing with future outbreaks of Ebola and other communicable diseases.

This document notes the key research findings and associated products or publications for each of the studies funded through the above call. The eight funded projects were:

	Title Ebola Response Anthropology	Lead institution LSHTM/University of	Research Anthropology	Public health Public engagement/
1	Platform	Sussex	Anumopology	Public information
2	Messaging to promote Ebola treatment-seeking behaviour	Umeå University	Participatory approach using qualitative	Public engagement/ Public information
3	Point-of-care diagnostic testing for EVD	Institut Pasteur de Dakar	Diagnostics	Laboratory functions
4	EbolaCheck – rapid point-of-need EVD diagnostics	University of W estminster	Diagnostics	Laboratory functions
5	Predicting the spread of EVD	Oxford University	Modelling	Epidemiology
6	Modelling EbolainWest Africa	London School of Hygiene and Tropical Medicine (LSHTM)	Modelling	Epidemiology
7	Participatory behavioural change for infection prevention and control	International Rescue Committee	Participatory mixed methods approach	Operations-ready workers and volunteers
8	How traditional healers understand and deal with EVD	Platform for Dialogue and Peace (P4DP)	Participatory action research	Operations-ready workers and volunteers

Ebola Response Anthropology Platform					
Grant awarded:	£297,160				
Lead organisation:	London School for Hygiene and Tropical Medicine/University of Sussex				
Partners:	University of Sussex, Institute of Development Studies, University of Exeter				
Project length:	Nov-14 to Nov-15				
Study location(s):	Sierra Leone				
Principal Investigator:	Melissa Parker				
Objective:	To develop an online resource portal to enable key stakeholders, practitioners and researchers to access information, findings and background resources about the socio-cultural, historical, economic and political dimensions of Ebola.				
Key findings/ outcomes	An online Anthropology Platform resource porta is available: http://www.ebola-anthropology.net/ The portal provides anthropological advice on how to engage with socio-cultural and political dimensions of Ebola outbreaks and build locally-appropriate interventions. Key topics include: - Identifying and diagnosing cases - Management of the dead - Caring for the sick - Clinical trials/research - Preparedness - Communication and engagement Since the 2014 Ebola outbreak, LSHTM and IDS have taken steps to develop an Epidemic Response Anthropology Platform (ERAP). This was launched in June 2018:- https://www.epidemicresponse.net/				
Key outputs	Multiple journal articles are available in the Annex				

Development of a Social Marketing Strategy to Promote Ebola treatment-seeking behaviour in Sierra Leone

Grant awarded:	£158,547		
Lead organisation:	Umeå University		
Partners:	Medical Research Centre in Sierra Leone, Centre for Health Research and Training in Sierra Leone		
Project length:	Jan-15 to Apr-15		
Study location(s):	Sierra Leone		
Principal Investigator:	John Kinsman		
Objective:	To design effective messaging to promote Ebola treatment-seeking behaviour in Sierra Leone, taking into consideration gender and urban-rural contexts		
Key findings/ outcomes	Set of messages on 14 topics developed. Each message included details of its rationale, audience, dissemination channels, messengers, and associated operational issues that needed to be taken into account. Recommendations for future emergencies included: - importance of embedding systematic, iterative qualitative research fully into the message development process; - communication of the subsequent messages through a two-way dialogue with communities, using trusted messengers; - engagement to ensure national ownership of the messages, and to maximize the chance of their being utilised.		
Key outputs	A set of empirically-derived Ebola messages relevant for Sierra Leone (April 2015) but able to be adapted for other EVD/related outbreaks: https://bit.ly/2IKM5sE Journal article with key findings (other articles available in Annex): http://www.elrha.org/wp-content/uploads/2017/08/Ebola-messaging-in-Sierra-Leone.pdf		

Point-of-care EVD diagnostic testing for Ebola treatment centres

Grant awarded:	£509,646
Lead organisation:	Insitut Pasteur de Dakar
Partners:	University of Stirling, Robert Koch Institute, German Primate Center, Twist Dx
Project length:	Dec-14 to Dec-15
Study location(s):	Guinea
Principal Investigator:	Amadou A. Sall,
Methodology:	Diagnostic tool
Objective:	Development and deployment of a diagnostic tool for Ebola virus detection
Key findings/ outcomes	Diagnostic tool developed. The mobile laboratory (using glovebox, DiaS, SE and RT-RPA) is a good solution for decentralised biosafe diagnosis of Ebola virus. The small mobile laboratory is able to be run by local teams and represents a sustainable contribution to future outbreak control.
	The 'lab in a suitcase' has been deployed in DRC during the 2018 Ebola outbreak.
Key outputs	Journal article with key findings:
	https://bit.ly/1MkMuA7

EbolaCheck: Rapid Point-of-Need EVD Diagnostics					
Grant awarded:	£620,655				
Lead organisation:	University of Westminster				
Partners:	BioGene Ltd., US Army Medical Research Institute of Infectious Diseases, Kwame Nkrumah University of Science and Technology, Public Health England.				
Project length:	Nov-14 to Nov-15				
Study location(s):	West Africa				
Principal Investigator:	Sterghios Moschos,				
Objective:	To develop a diagnostic tool to identify active Ebola virus infection in unprocessed blood				
Key findings/ outcomes	Development of a point-of-need molecular diagnostic device to identify active Ebola virus infection in unprocessed blood. The device enables a fast, laboratory infrastructure-free, minimal risk and simple standard operating procedure suited to frontline, field use.				
	The diagnostic is being used to detect multiple haemorrhagic fevers, including Ebola, and its utility for use in differential diagnosis of venomous animal bite injuries is being explored and for pharmaceutical research.				
	Journal article with key findings:				
	https://rsc.li/2KIBrmQ				

Predicting the geographic spread of Ebola virus disease in West Africa

Grant awarded:	£95,179
Grant awarded.	193,179
Lead organisation:	University of Oxford
Partners:	Spatial Ecology and Epidemiology Group
Project length:	2014-15
Study location(s):	West Africa
Principal Investigator:	Simon Hay
Objective:	To predict the geographic spread of EVD through mapping
Key findings/ outcomes	Using data on human mobility, high resolution maps were developed to make quantitative predictions of Ebola disease. The maps were continuously updated as data became available and automatically disseminated via an online geographic information system, alongside other spatial information, to guide control of the ongoing outbreak. The core movement modelling software developed was later used to assess risk of spread of Chikungunya in Brazil https://doi.org/10.1186/s12916-015-0348-x and in a study looking at the spread of invasive mosquitoes and outbreaks of dengue among indigenous communities in Australia.
Key outputs	Ebola movement modelling software: https://github.com/SEEG-Oxford/ebola-python-pipeline Package for the analysis of movement data in disease modelling and mapping: https://github.com/SEEG-Oxford/movement

Modelling Ebola in West Africa					
Grant awarded	: £258,922				
Lead organisation	: London School of Hygiene and Tropical Medicine				
Partners	Médecins Sans Frontières, Save The Children, World Health Organization				
Project length	: Dec-14 to Dec-15				
Study location(s)	: Sierra Leone				
Principal Investigator	: John Edmunds,				
Objective:	To develop models to project transmission of EVD				
Key findings/	A modelling tool was developed which helped characterise the transmission dynamics of EVD, project the future course of the epidemic, and estimate the impact of alternative control policies.				
outcomes	Real-time modelling was key to tracking changes in the reproduction number and helping to inform bed capacity planning in the context of the rapidly changing EVD outbreak in West Africa.				
Key outputs	Journal article with key findings (other articles available in Annex): https://bit.ly/1DZ3dmF				

Participatory Behavioural Change to Reinforce Infection Prevention and Control for Ebola Virus Disease in Sierra Leone

Grant awarded:	£185,621
Lead organisation:	International Rescue Committee UK
Partners:	Durham University, Charité – Universitätsmedizin Berlin, University of Sierra Leone, Kenema District Health Team
Project length:	Nov-14 to May-15
Study location(s):	Sierra Leone
Principal Investigator:	Dr Lara Ho
Objective:	To improve Ebola infection prevention and control in primary healthcare facilities in Sierra Leone during the EVD outbreak
Key findings/ outcomes	Interviews/observations with Health Care Workers found favourable attitudes towards Infection Prevention Control (IPC) and gaps in practice. To make all facilities IPC compliant, socio-behavioural improvements and a secure supply chain were essential.
Key outputs	Journal article with key findings (other articles available in Annex):
, ,	http://gh.bmj.com/content/1/4/e000103

Role of Traditional Healers in Transmission and Mitigation of the Ebola Outbreak

Grant awarded:	£84,826
Lead organisation:	Platform for Dialogue and Peace (P4DP)
Partners:	Ministry of Internal Affairs , CSO Secretarait on Natural Resources Management
Project length:	6 months
Study location(s):	Sierra Leone, Liberia
Principal Investigator:	James Shiloe
Objective:	To investigate the role of Traditional Healers in transmission and mitigation of the Ebola outbreak in Liberia
Key findings/ outcomes	Research assisted in developing a stronger understanding of alternative medicines and their public health potential.
Key outputs	Information available on the project website: http://www.elrha.org/projects/platform-for-dialogue-and-peace/

Annex 1 – list of publications

R2HC Outputs: Peer reviewed publications – Ebola Call

Lead research partner	Publication title	Authors	Date Published	Journal/ book	Link
Westminst er Uni	Field-deployable, Quantitative, Rapid Identification of Active Ebola Virus Infection in Unprocessed Blood	Shah, Edge, Bruce, Bentley, Pitman, Moschos, Burton, Norwood, Tyler, Nazareth, Usher, Cleaver, Lee, Easterbrook, Lee, Wright, Richards	25/09/201 7	Chemical Science	http://pubs.rsc.org/en/conte nt/articlelanding/2017/sc/c7 sc03281a#!divAbstract
Umea University Sweden	Development of a set of community-informed Ebola messages for Sierra Leone	Kinsman, Bruijne, Jalloh, Harris, Abdullah, Boye- Thompson, Sankoh, Jalloh, Jalloh-Vos	07/08/201 7	PLOS – Neglecte d tropical diseases	http://www.elrha.org/wp- content/uploads/2017/08/Ebol a-messaging-in-Sierra- Leone.pdf
IRC	We and the nurses are now working with one voice": How community leaders and health committee members describe their role in Sierra Leone's Ebola response	McMahon, Ho, Sc ott, Brown, Miller, Ansumana, Ratna yake	18/07/201 7	BMC Health Services Research	https://bmchealthservres.bi omedcentral.com/articles/1 0.1186/s12913-017-2414-x
LSHTM	Emerging disease or emerging diagnosis? Lassa fever and Ebola in West Africa	Wilkinson	25/05/201 7	Anthrop ological Quarterl y	http://www.ids.ac.uk/publicati on/emerging-disease-or- emerging-diagnosis-lassa-fever- and-ebola-in-west-africa
LSHTM	Epistemologies of Ebola: reflections on the experience of the Ebola Response Anthropology Platform'	Martineau, Wilkinson, Parker	25/05/201 7	Anthrop ological Quarterl y	http://www.ids.ac.uk/publicati on/epistemologies-of-ebola- reflections-on-the-experience- of-the-ebola-response- anthropology-platform

LSHTM	Engaging 'communities': anthropological insights from the West African Ebola epidemic	Wilkinson, Parker, Martineau, Leach	10/04/201 7	The Royal Society	http://rstb.royalsocietypublishing.org/content/372/1721/20160305
IRC	Improving Ebola infection prevention and control in primary healthcare facilities in Sierra Leone: a single- group pretest post-test, mixed-methods study	Ratnayake, Ho, Ansumana, Brown, Borchert, Miller, Kratz, McMahon, Sahr	2/12/2016	BMJ Global Health	http://gh.bmj.com/content/ 1/4/e000103
LSHTM	Comparing social resistance to Ebola response between Sierra Leone and Guinea suggests explanations lie in political configurations not culture	Wilkinson, Fairhead	09/11/201 6	Critical Public Health	http://www.tandfonline.com/d oi/full/10.1080/09581596.2016. 1252034
LSHTM	Ebola: how a people's science helped end an epidemic	Richards	September 2016	Richards, P. 2016 Ebola: how a people's science helped end an epidemic	https://www.amazon.co.uk/ Ebola-Peoples-Science- Epidemic- Arguments/dp/1783608587
IRC-UK	Healthcare providers on the frontlines: a qualitative investigation of the social and emotional impact of delivering health services during Sierra Leone's Ebola epidemic	McMahon, Ho, Brown, Miller, Ansumana, Kennedy	September 2016	Health Policy & Planning	http://heapol.oxfordjournals .org/content/31/9/1232
LSHTM	Biosocial Approaches to the Control of Neglected Tropical Diseases	Parker, Polman, Allen	18/07/201 6	Journal of Biosocial Science	https://www.cambridge.org/ core/journals/journal-of- biosocial- science/article/biosocial- approaches-to-the-control- of-neglected-tropical-

					diseases/18E96B88B9E226E 043713AF4EBC92486
LSHTM	Neglected Tropical Diseases in Biosocial Perspective	Parker, Polman, Allen	July 2016	Journal of Biosocial Science	https://www.cambridge.org/ core/journals/journal-of- biosocial- science/article/neglected- tropical-diseases-in- biosocial- perspective/7D0EE44163FFC B090A1D4B4B50C7FBB5
LSHTM	The Neglected Dimension of Global Security: a framework to counter infectious disease crises.	GHRF Commission (Commission on a Global Health Risk Framework for the Future	June 2016	National Academi es Press	http://readbulk.xyz/neglecte d-dimension-global-security- infectious/
LSHTM	Zoonotic disease: who gets sick, and why? Explorations from Africa	Dzingirai, Bett, La wson, Mangwany a, Scoones, Wald man, Wilkinson, Leach, Winnebah	April 2016	Critical Public Health	http://www.tandfonline.com/doi/abs/10.1080/09581596. 2016.1187260?journalCode=ccph20
LSHTM	Beyond biosecurity: the politics of Lassa fever in Sierra Leone	Wilkinson	February 2016	One Health, Science, Politics and Zoonotic Disease in Africa, Earthsca	Beyond biosecurity: the politics of Lassa fever in Sierra Leone (book)
LSHTM	Rat-atouille: a mixed method study to characterize rodent hunting and consumption in the context of Lassa fever	Bonwitt, <u>Kelly</u> , An sumana, Agbla,Sa hr, Saez, Borchert , Kock, Fichet- Calvet	February 2016	Ecohealt h	http://www.ncbi.nlm.nih.gov /pubmed/26895631
LSHTM	The limits to rapid response: Ebola and structural violence in West Africa	Bardosh, Leach, Wilkinson	February 2016	'One Health, Science, Politics and Zoonotic Disease	http://steps- centre.org/publication/one- health-science-politics-and- zoonotic-disease-in-africa-2/

				in Africa', Bardosh, K. (ed), Earthsca	
LSHTM	Effectiveness of ring vaccination as a control strategy for Ebola virus disease	Kucharski, Eggo, Watson, Camacho, Funk, Edmunds	January 2016	Emergen cy Infectiou s Diseases	http://wwwnc.cdc.gov/eid/a rticle/22/1/15-1410 article
LSHTM	Charismatic Models and Compassionate Research: The Making of a Global Health Emergency	Kelly		Economy and Society	N/A
LSHTM	An Anthropology of Light and Zoonosis: Shadows of Home	Kelly		Medical Anthrop ology Quarterl y	N/A
Oxford University	Predicting the geographic spread of Ebola Virus Disease in West Africa	Hay, et al.		Proceedi ngs of the National Academy of Science of the USA	N/A
LSHTM	Measuring the impact of Ebola control measures in Sierra Leone	Kucharski, Camac ho, Flasche, Glove r, Edmunds, Funk	October 2015	Proc Natl Acad Sci USA	http://www.ncbi.nlm.nih.gov /pubmed/26460023
LSHTM	Ebola Virus Disease in the Democratic Republic of the Congo: 1976– 2014	Rosello, Mossoko, Flasche, Hoek, Mbala, Camacho, Funk, Kucharski, Ilunga, Edmunds, Piot, Baguelin, Tamfum	November 2015	Elife	https://elifesciences.org/content/4/e09015

LSHTM	Duration of Ebola virus RNA persistence in semen of survivors : population-level estimates and projections	Eggo, Watson, Camacho, Kucharski, Funk, Edmunds	December 2015	Euro Surveilla nce	http://www.eurosurveillance .org/ViewArticle.aspx?Article Id=21326
LSHTM	Estimating the probability of demonstrating vaccine efficacy in the declining Ebola epidemic: a Bayesian modelling approach	Camacho, Eggo, Funk, Watson, Kucharski, Edmunds	December 2015	BMJ	http://bmjopen.bmj.com/content/5/12/e009346?cpetoc &trendmd-shared=1
Institute Pasteur	Development and deployment of a rapid recombinase polymerase amplification Ebola virus detection assay in Guinea in 2015	Faye, Soropogui, Patel, El Wahed Loucoubar, Fall, Kiory, Magassouba, Keita, Kondé, Diallo, Koivogui, Karlberg, Mirazimi, Nentwich, Piepenburg, Niedrig, Weidmann, Sall.	November 2015	Euro Surveilla nce	http://www.eurosurveillance .org/ViewArticle.aspx?Article Id=21289
LSHTM	Ebola in Meliandou: Tropes of 'sustainability' at Ground Zero	Fairhead, Millimouno	2015	Fairhead, J and D. Millimou no. 2015. Ebola in Meliando u: Tropes of 'sustaina bility' at Ground Zero.	In: Brightman, M & Lewis J (eds.) Anthropological Visions of Sustainable Futures London: Palgrave
LSHTM	Temporal Changes in Ebola Transmission in Sierra Leone and Implications for Control Requirements: a Real- time Modelling Study	Camacho, Kucharski, Aki- Sawyerr, White, Flasche, Baguelin, Pollington, Carney, Glover, Smout, Tiffany, Edmunds, Funk,	February 2015	PLOS	http://currents.plos.org/out breaks/article/temporal- changes-in-ebola- transmission-in-sierra-leone- and-implications-for-control- requirements-a-real-time- modelling-study/

LSHTM	Evaluation of the benefits and risks of introducing Ebola community care centers, Sierra Leone. Emerg Infect Dis	Kucharski, Camacho, Checchi, Waldman, Grais, Cabrol, Briand, Baguelin, Flashe, Funk, Edmunds	March 2015	Emerging Infectiou s Diseases	https://www.ncbi.nlm.nih.go v/pmc/articles/PMC4344293 /
LSHTM	The "Ebola ça suffit" Vaccine Trial Team. Ring vaccination for Ebola : a novel approach to evaluate vaccine efficacy and effectiveness during an outbreak	Henao-Restrepo	June 2015	ВМЈ	http://www.bmj.com/content/351/bmj.h3740
LSHTM	A systematic literature review of the quality of evidence for injury and rehabilitation interventions in humanitarian crises	Smith, Roberts, Knight, et al.	August 2015	Springer	http://link.springer.com/article/10.1007/s00038-015-0723-6
LSHTM	The Effectiveness of Interventions for Non- Communicable Diseases in Humanitarian Crises: A Systematic Review	Ruby, Knight, Perel, Blanchet, Roberts	September 2015	PLOS	http://journals.plos.org/plos one/article?id=10.1371/jour nal.pone.0138303
LSHTM	Evidence on the Effectiveness of Water, Sanitation, and Hygiene (WASH) Interventions on Health Outcomes in Humanitarian Crises: A Systematic Review	Ramesh, Blanchet, Ensink, Roberts	September 2015	PLOS	http://journals.plos.org/plos one/article?id=10.1371/jour nal.pone.0124688
LSHTM	Systematic review of the evidence on the effectiveness of sexual and reproductive health interventions in humanitarian crises	Warren, Post, Hossain, Blanchet, Roberts	September 2015	BMJ Open	http://bmjopen.bmj.com/co ntent/5/12/e008226.full.pdf +html
LSHTM	Extending the 'social': Anthropological contributions to the study of viral haemorrhagic fevers	Brown, Kelly, Saez, Fichet- Calvet, Ansumana, Bonwitt,	April 2015	PLOS Neglecte d Tropical Diseases	http://www.ncbi.nlm.nih.gov /pmc/articles/PMC4400098/

		Magassouba, Sahr, Borchert			
LSHTM	Understanding social resistance to Ebola response in Guinea	Fairhead	April 2015	African Studies Review	http://www.ebola- anthropology.net/wp- content/uploads/2015/04/Fa irhead- EbolaASRFinalSubmissionWe b.pdf
LSHTM	The Ebola crisis and post- 2015 development	Leach	August 2015	Journal of Internati onal Develop ment	http://onlinelibrary.wiley.co m/doi/10.1002/jid.3112/abs tract
LSHTM	'Lassa Fever: The politics of an emerging disease and the scope for One Health'	Wilkinson	March 2015	STEPS Working paper 83	http://steps- centre.org/publication/lassa- fever-the-politics-of-an- emerging-disease-and-the- scope-for-one-health-2/
LSHTM	Efficacy and effectiveness of an rVSV-vectored vaccine expressing Ebola surface glycoprotein: interim results from the Guinea ring vaccination cluster-randomised trial	Henao-Restrepo et al.	August 2015	Lancet	http://www.thelancet.com/j ournals/lancet/article/PIIS01 40-6736%2815%2961117- 5/abstract
LSHTM	The ring vaccination trial: a novel cluster randomised controlled trial design to evaluate vaccine efficacy and effectiveness during outbreaks, with special reference to Ebola	Henao-Restrepo	July 2015	ВМЈ	http://www.bmj.com/content/351/bmj.h3740
LSHTM	Material Proximities and Hotspots: Towards an Anthropology of Viral Haemorrhagic Fevers 2014	Brown, Kelly	April 2014	Medical Anthrop ology Quarterl y	http://www.ncbi.nlm.nih.gov /pubmed/24752909

LSHTM	Ebola: limitations of correcting misinformation	Chandler, Fairhead, Kelly, Leach, Martineau, Mokuwa, Parker, Richards, Wilkinson	December 2014	The Lancet	http://www.thelancet.com/j ournals/lancet/article/PIISO1 40-6736(14)62382- 5/fulltext?rss=yes
LSHTM	Ebola, Running Ahead	Kelly	December 2014	LIMN	http://limn.it/ebola-running- ahead/
LSHTM	Notes from Case Zero: Anthropology in the Times of Ebola	Saez, Kelly, Brown	September 2014	Somatos phere	http://somatosphere.net/20 14/09/notes-from-case-zero- anthropology-in-the-time-of- ebola.html
LSHTM	Social pathways for Ebola Virus Disease in rural Sierra Leone, and some implications for containment	Richards, Amara, Ferme, Kamara, Mokuwa, Sheriff, Suluku, Voor	October 2014	PLOS	http://blogs.plos.org/speaki ngofmedicine/2014/10/31/s ocial-pathways-ebola-virus- disease-rural-sierra-leone- implications-containment/
LSHTM	Ebola: myths, realities & structural violence	Wilkinson, Leach	December 2014	African Affairs	http://afraf.oxfordjournals.o rg/content/early/2014/12/0 4/afraf.adu080







