UCL dPHE Report

2018-2022

dphe.ucl.ac.uk

> **UCL dPHE is leading the development of cutting-edge digital innovations: strengthening global capacity, preparedness and response to public health emergencies!**

> **In 2020, the dPHE team worked tirelessly on COVID-19 response – apart from winning multiple awards, the team spirit and mutual support was simply contagious!**

Contents

Centre
Mission

Welcome to the second UCL dPHE Report celebrating the achievements of the Centre since its establishments in November 2018. I am immensely proud of what my team has achieved in such a short time, and how it has risen to the COVID-19 challenge in 2020-2021.

Building on the successful virtual 2nd UCL dPHE anniversary event and my inaugural lecture in 2021, I am proud to celebrate the success of the 3rd UCL dPHE anniversary international event 'Digital One Health in the Era of Global Warming' held in person at UCL in July 2022. In conjunction with the dPHE event, it was exciting to hold the first in-person MEWAR project meeting in London with large delegations from Brazil, Turkey and Madeira.

dPHE was born thought my lifelong passion for improving public health and preparedness and response to emergencies through cutting edge technology. Breaking the disciplinary silos and bridging the gap between computer science, big data and public and global health, provided boundless opportunities to solve the global challenges our society is facing today.

dPHE success is cornered in the enthusiastic multidisciplinary team eager to learn and help each other, and through equitable collaboration with our international project partners across five continents. It is the joy of making impact on the health of citizens some of the world's poorest countries and regions, such as Nepal, Nigeria, Brazil, Middle East and South Africa, through digital interventions and contributing to fighting epidemics and emergencies, that has been the team's passion and drive! I am excited to see our flagship projects in Brazil and Nigeria having expanded this year to Portugal to address mosquito surveillance on the island of Madeira, and GADSA to the UK to be localised and piloted in the UK.

I was proud to see how the dPHE team have risen to the COVID-19 challenge in 2020-21 and rapidly launched several new initiatives helping citizens in lockdown. It was thrilling to see formal recognition by winning prestigious awards and prizes in 2020, including the Computing Raising Stars 'Team of the Year 2020 Award', IT UK Awards and the second 'Innovator of the Year 2020' Award I received by Women in Tech Excellence for the COVID-19 My Activity Journal app.

Sharing our passion for digital global health through postgraduate teaching and students' supervision, dPHE events, public engagement initiatives, Frontiers in Digital Public Health journal, Conference for Digital Public Health and with those how read out Newsletter and follow us on social media, has been a flourishing strategy. Seeing students, interns and young researchers getting inspired to fight COVID-19 and the centre growing with new staff and PhD students excited to help those in most disadvantaged parts of the world through technology innovation has been, in my view, the most important success of the Centre. Thank you all who have made the first three years of dPHE such a success and a lot of fun – professionally and socially. I am looking forward to many more!

- Professor Patty Kostkova, UCL dPHE Director

I am very excited to welcome you to this celebration of the 3rd anniversary of UCL dPHE Centre in my new role as UCL Vice-Provost (Research, Innovation & Global Engagement). The Centre, bringing together expertise from computer science, epidemiology, global health and engineering solving real-world global health and epidemics preparedness challenges, is an excellent example of UCL interdisciplinary research nurtured by our Grand Challenges programme. Under Prof Patty Kostkova's leadership, the UCL dPHE Centre has gone from strength to strength – improving vector-borne diseases surveillance using mobile and IoT technology in Brazil and Portugal, strengthening antimicrobial stewardship by deploying a gamified decision support app in Nigeria and the UK, dPHE has been creating cutting edge innovation with real-world impact. It is impressive to see an academic Centre collect so many industrial awards such as the 'Team of the Year 2020' Award and Prof Kostkova being awarded the 'Innovator of the Year' by Computing Women in Tech Excellence two years in a row in 2019-20. I very much look forward to seeing dPHE solving more interdisciplinary global challenges, and contributing to the UCL's global impact.

- Professor Geraint Rees, UCL Vice-Provost (Research, Innovation and Global Engagement)

For 5 years, the UCL Centre for Digital Public Health (dPHE) has been going from strength to strength – developing award-winning digital health innovations and raising international profile in research and teaching, and winning multiple awards, such as the Team of the Year 2020. The dPHE Centre under strong leadership of Patty Kostkova has been strengthening IRDR in the domain of digital health in particular during the Covid-19 pandemic, which demonstrated the importance and value of digital health within disaster risk reduction. I very much look forward to celebrate dPHE future successes in IRDR under my leadership

- Professor Joanna Faure Walker, UCL Institute for Risk and Disaster Reduction (IRDR) Head of Department

Providing a welcoming space for multiple disciplines to come together, to share their individual approaches to problem solving and to begin talking the same language is essential if we are to successfully tackle the biggest of global challenges faced by public health today. The IRDR dPHE has rapidly grown as a strong and supportive community, not only connecting people through its series of conferences and events but also establishing itself as a leading Centre within digital public health research and training.*

- Dr. Caroline Wood, Honorary Researcher and former UCL dPHE Manager

As Director and head of UCL's newest department, the Institute of Risk and Disaster Reduction, I am very proud of the numerous achievements of the UCL IRDR Centre for Digital Public Health in Emergencies (dPHE) under the leadership of Professor Patty Kostkova and its strong contribution to the meteoric growth of the IRDR. Collaborating with WHO, UN, MSF and other internationally leading organisations, the award-winning dPHE is leading digital health interdisciplinary research and innovation which are transforming public health, clinical care and citizens' wellbeing in the UK, Africa, Brazil, Nepal and the Middle East.

The dPHE will play a leading role on a proposed new digital health master's programme which aims to inspire the next generation of students and practitioners, while bringing interdisciplinary collaboration across UCL and internationally through the annual Digital Public Health conference led by Patty. In 2020, dPHE gathered a number well-deserved awards and prizes for its pioneering research on the COVID-19 response. *

- Professor Peter Sammonds, UCL Institute for Risk and Disaster Reduction Former (IRDR) Head of Department

Digital public health, big data and mobile technologies have been underpinning public health advances for a long time, however, the COVID-19 pandemics made it unimaginable to see any transformation of public health and global response to emergencies without digital health innovation.

The UCL Centre for Digital Public Heath in Emergencies, established in 2018 as a culmination of Prof Patty Kostkova's career passion for improving global health through bridging the gap between computer science and public health, was at the right place at the right time.

In only 2 years dPHE achieved international leadership in research and innovation across UCL, nationally and globally - working on five continents. Going from strength to strength, even turning the COVID-19 pandemics into an opportunity to improve wellbeing of citizens in lockdown through an innovative app. The UCL dPHE fully deserves the prestigious Computing Rising Stars Team of the Year 2020 Award! *

- Professor David Lomas, UCL Vice-Provost (Health)

UCL Centre for Digital Public Health in Emergencies (dPHE) represents a cutting-edge cross-disciplinary digital research, innovation and training improving citizens' health and preparedness, and our capacity to respond to emergencies. dPHE is an excellent example of an initiative fulfilling the advocacy of UCL's spiritual founder, Jeremy Bentham, for "the greatest happiness for the greatest number".

The Centre is leading international cross-disciplinary teams investigating: a mobile gamified training app to combat the Zika virus in Brazil; increasing resilience and disaster preparedness in women in Nepal; and strengthening antibiotic stewardship using game-based training in Nigeria and the UK. Prof Kostkova's research includes one of the first studies exploring the potential of Twitter for early-warning of swine flu 2009 – paving the foundation for the big data and innovation challenges of COVID-19. The pandemic has brought digital public health to public and political attention, and the dPHE team received much deserved recognition: Team of the Year 2020 Award and Prof Kostkova was 'Innovator of the Year' two years in a row in 2019 and 2020.

I eagerly anticipate the public benefit that will arise from the dPHE's work in the years to come.*

- Professor David Price, Former UCL Vice-Provost (Research)

*Content written in 2021

Projects and where we work

UNITED KINGDOM

Adaptation of GADSA for UK settings: A mobile gamified antimicrobial stewardship decision support app for prescribing behaviour change

PASS: Collaborative project aiming to increase antibiotic stewardship through behaviour change

MIDDLE EAST, WEST BANK

Data Sans Frontiers: Medi+board for mobile surveillance in medical emergencies

SOUTH AFRICA

DR-TB Genie: Mobile decision support for decentralised management of drug-resistant tuberculosis

WORLDWIDE

iNRIC: International Resource for Infection Control providing single access point for infection control guidelines and information

#MyLockdownJournal: Gamified app journal documenting lifestyle change during the COVID-19 pandemic in 2020

COVID-19 social media discourse: Mapping trends and key terms shared on social media during the pandemic in 2020

Medi+Board: Dashboard of data streams for modelling, prediction and early warning to outbreaks and epidemics

Medi+Vac: Understanding social media and news coverage of the anti-vaccination debate

PORTUGAL

ZIKA: A gamified m-training app for health professionals on protocols and participatory surveillance associated with Zika virus

MOISS: A real-time approach for monitoring the weather and the water in order to evaluate the most suitable mosquito habitats.

AFRICA

NRIC meets ICAN: Understanding information needs of infection control practitioners in Africa

NIGERIA

GADSA: A gamified antimicrobial stewardship decision support app for prescribing behaviour change

NEPAL

MANTRA: Increasing maternal and child health resilience before, during and after disasters using mobile technology in Nepal

MALAYSIA

SYMBIOTIC: Social-industrial symbiosis of Malaysia's bio-plastic wastes

AUSTRALIA AND EUROPE

Edugames4all: Educational games for children across Europe teaching antibiotic resistance and hand hygiene

BRAZIL AND TURKEY

MEWAR: Mosquitoes populations modelling for early warning system and rapid response by public health authorities correlating climate, weather and spatial-temporal mobile surveillance data

MOISS: A real-time approach for monitoring the weather and the water in order to evaluate the most suitable mosquito habitats.

BRAZIL

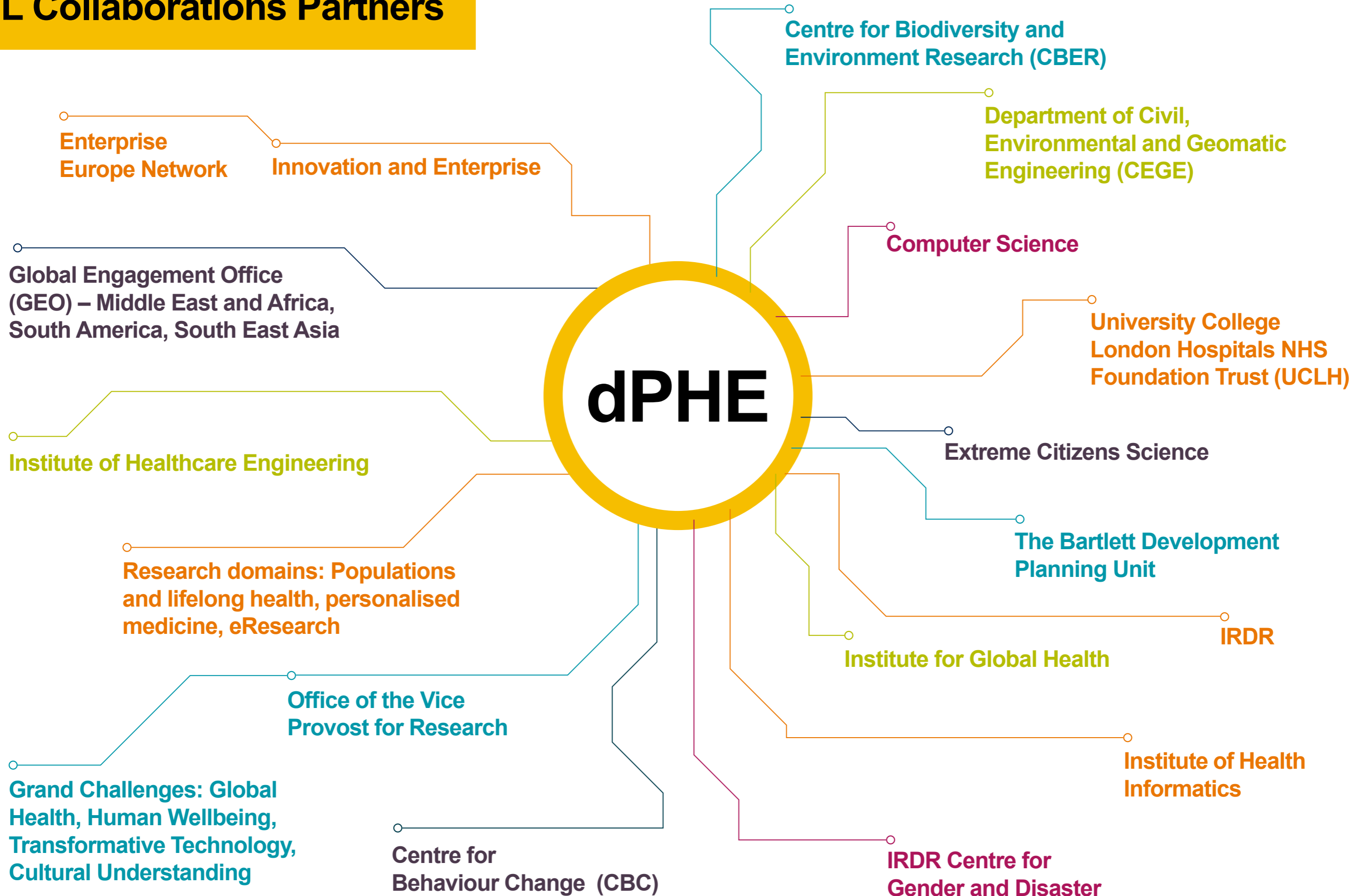**ZIKA:** A gamified m-training app for health professionals on protocols and participatory surveillance associated with Zika virus

UCL Collaborations Partners
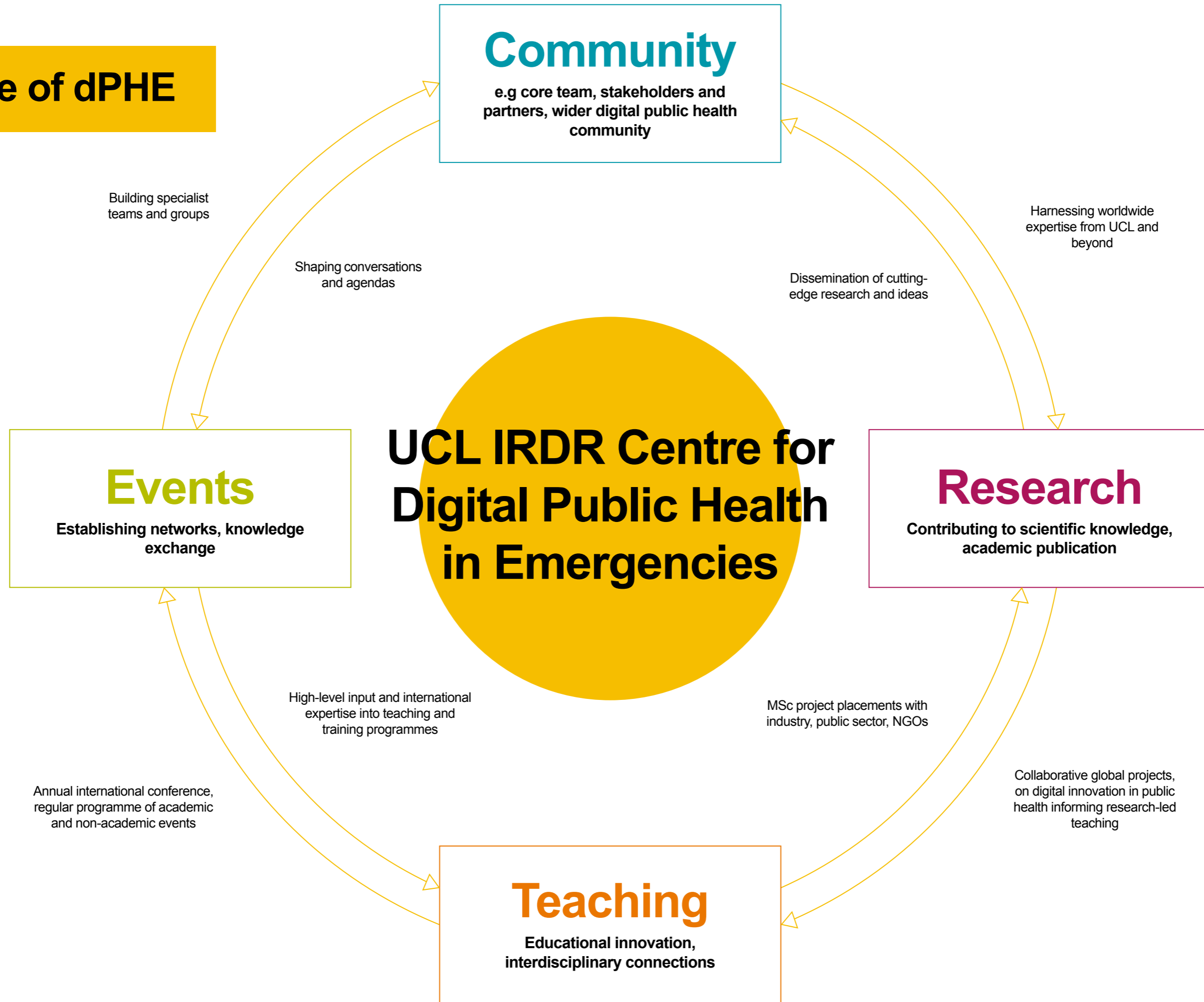
dPHE

Centre for Biodiversity and Environment Research (CBER)

Department of Civil, Environmental and Geomatic Engineering (CEGE)

Enterprise Europe Network

Innovation and Enterprise

Computer Science

Global Engagement Office (GEO) – Middle East and Africa, South America, South East Asia

University College London Hospitals NHS Foundation Trust (UCLH)

Extreme Citizens Science

Institute of Healthcare Engineering

The Bartlett Development Planning Unit

Research domains: Populations and lifelong health, personalised medicine, eResearch

IRDR

Institute for Global Health

Office of the Vice Provost for Research

Institute of Health Informatics

Grand Challenges: Global Health, Human Wellbeing, Transformative Technology, Cultural Understanding

Centre for Behaviour Change (CBC)

IRDR Centre for Gender and Disaster

Structure of dPHE

Community

e.g core team, stakeholders and partners, wider digital public health community

Research

Contributing to scientific knowledge, academic publication

Events

Establishing networks, knowledge exchange

Teaching

Educational innovation, interdisciplinary connections

UCL IRDR Centre for Digital Public Health in Emergencies

Building specialist teams and groups

Shaping conversations and agendas

Harnessing worldwide expertise from UCL and beyond

Dissemination of cutting-edge research and ideas

High-level input and international expertise into teaching and training programmes

MSc project placements with industry, public sector, NGOs

Annual international conference, regular programme of academic and non-academic events

Collaborative global projects, on digital innovation in public health informing research-led teaching

In Numbers

11 Staff members

5 PhD Students

9 MSc Students

5 Volunteers

10 Interns

6 Consultants

2,776 Followers on Twitter

507 Followers on Facebook

151 Followers on Instagram

1,491 Subscribers to a monthly newsletter

14 Interdisciplinary events
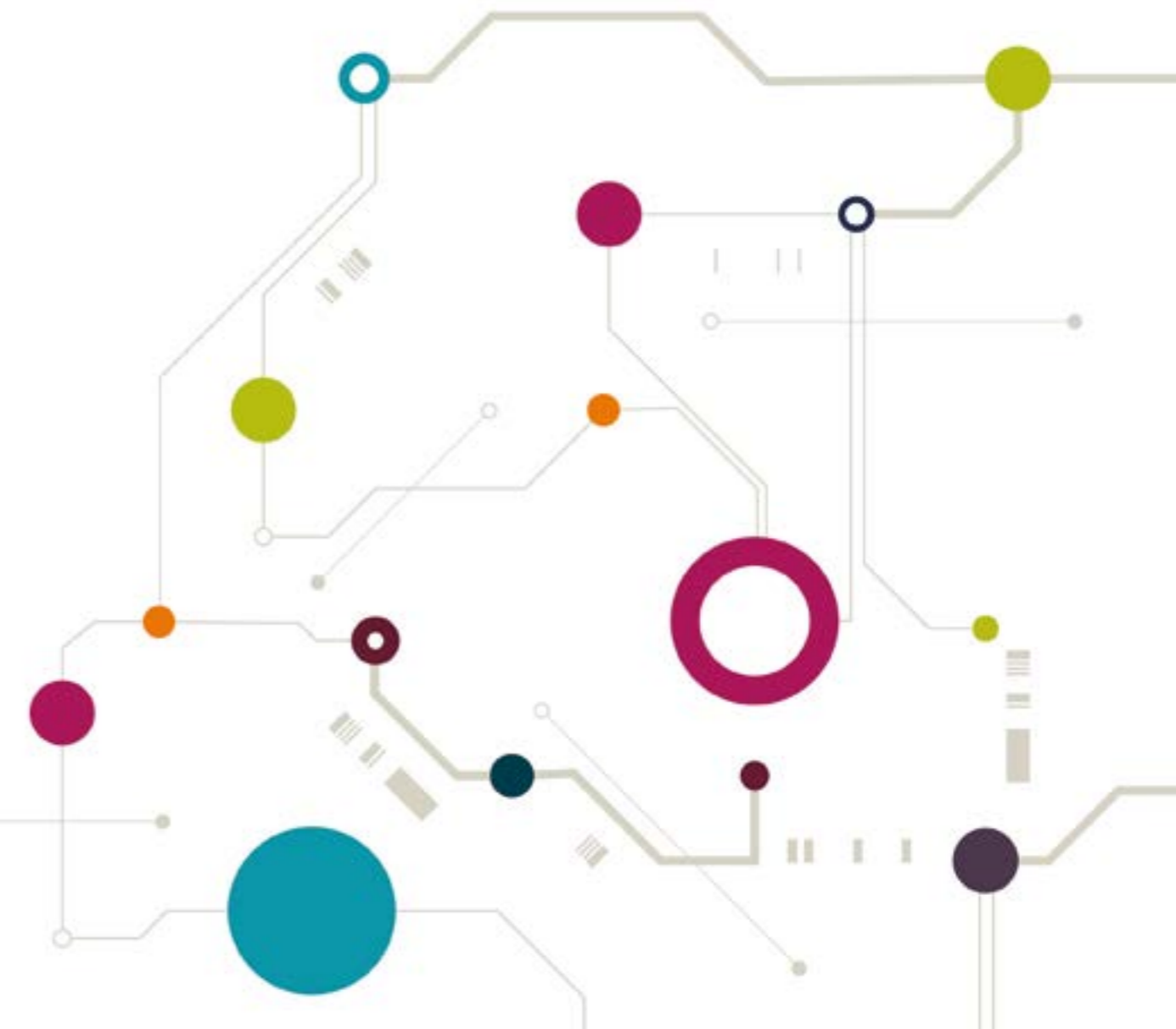
49 Journal publications

5 representation on UCL committees

30 Invited talks

6 UCL press releases

5 External press releases

Research

2017 - ONGOING

MOSQUITO SURVEILLANCE APP: IMPROVING EFFICIENCY OF SURVEILLANCE AND MONITORING FOR ZIKA VIRUS IN BRAZIL AND PORTUGAL

Mosquito-borne diseases such as dengue have been considered major public health concerns since the middle of the last century. Due to climate change and increased air travel, two new arboviruses became endemic in the Americas: Chikungunya and the recent deadly outbreak of Zika.

In this project, we co-authored and developed a gamified mobile app to engage community health workers in new methods for mobile phone surveillance protocols using participatory mapping of Aedes aegypti foci, in order to supply geographical information to policymakers at the municipality and regional and national levels. Secondly, using climatic and weather data we developed an early warning now-casting model to predict the mosquito population.

Working with colleagues in Brazil, the dPHE team completed a systematic mapping exercise of the Campina Grande locality.

The project is led by UCL IRDR dPHE with collaborators in Brazil from Universidade Federal de Pernambuco (UFPE) and the Federal University of Campina Grande and in Madeira Island from IASAÚDE, the regional health authority of Madeira Islands. This project is funded by the British Council Newton Fund and EPSRC Impact Accelerator Fund.
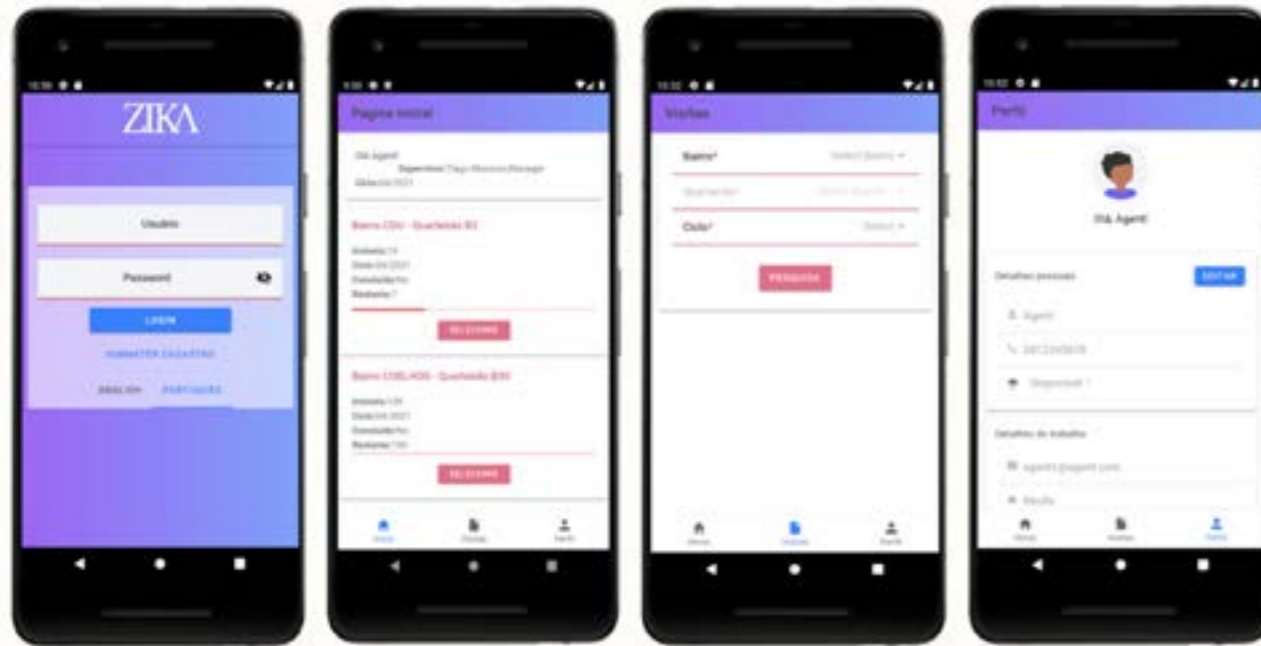
a) Login page   b) Home page   c) Past visits page   d) Profile page

Theme 1: Mosquito surveillance

2020 - ONGOING

MEWAR: MODELLING MOSQUITO POPULATIONS FOR EARLY WARNING OF ZIKA VIRUS IN BRAZIL

As a result of the recent climate change, mosquito-borne diseases (like Zika, dengue) are becoming endemic not only in sub-tropical regions of Africa and Latin America, but in other parts of the world.

In this project, we combine public health, mobile technology and climate modelling to evaluate the impacts of environmental changes on water providing breeding habitats for mosquitoes in Northeast Brazil. Technological innovation will include the use of mobile surveillance apps using gamification and citizen science co-developed with local stakeholders for reporting locations of water breeding points in Brazil.

Project led by UCL IRDR dPHE. Collaborators: Prof. Kate Jones (UCL CBER), Prof. Luiza Campos (UCL CEGE), Universidade Federal de Pernambuco (UFPE) and Federal University of Campina Grande, Bogazici University Turkey, and the World Health Organisation. Funded by Belmont Foundation.

2021 - ONGOING

MOISS: MOSQUITO OVITRAPS IOT SENSING SYSTEM

Mosquito infestation mainly depends on several environmental parameters, including climate, weather and water (i.e., physicochemical parameters). Standard techniques for immature mosquito surveillance are based on remote sensing and weather stations as primary data sources for environmental variables and collecting water samples by environmental health agents assessing the water quality. Such tools may lead to misidentifications, especially when comprehensive surveillance is needed.

In this project, we co-authored and co-developed a mosquito Ovitraps IoT Sensing System, an Internet of Things-based System for continuous, real-time and autonomous environmental monitoring. The system provides a real-time approach for monitoring the weather and the water in order to evaluate the most suitable mosquito habitats.

The project is led by UCL IRDR dPHE with collaborators in Portugal from ITI/LARSyS, Instituto Superior Técnico, Lisbon and IASAÚDE, the regional health authority of Madeira Islands. This research was funded by the Belmont Forum and supported in the United Kingdom by UKRI NERC under the grant NE/T013664/1. Equipment was funded by both UCL Institution for Risk and Disaster Reduction and King Abdulaziz City for Science and Technology (KACST).

Theme 1: Mosquito surveillance
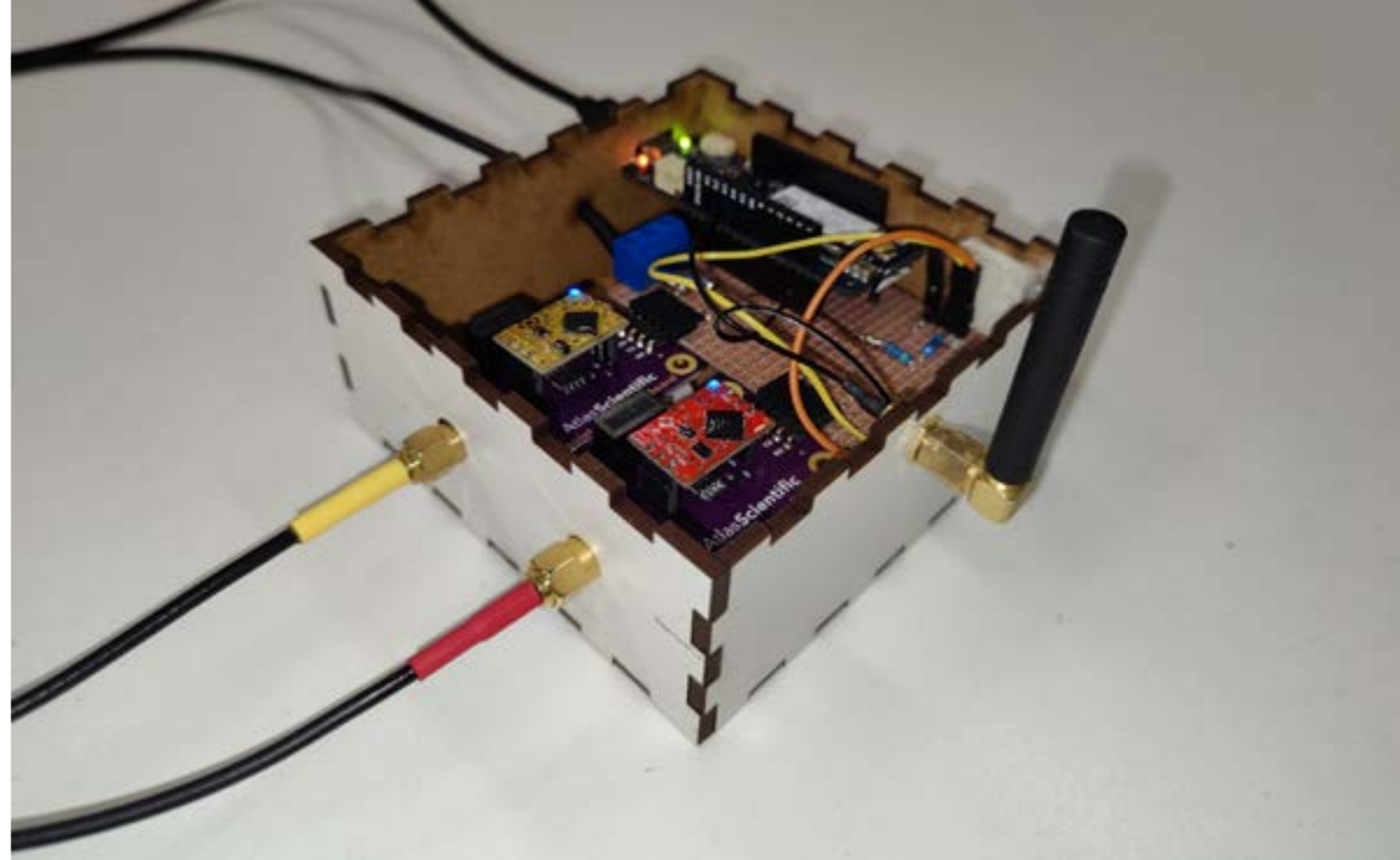
2017 - 2019

GADSA: ENCOURAGING BETTER USE OF ANTIBIOTICS IN NIGERIA

Many deaths caused by infectious diseases in lower-income countries could be avoided through better infection prevention and control practices including appropriate prescribing of antibiotics. As high as 20-50% of antimicrobial use in Africa is thought to be inappropriate.

The GADSA (Gamified Antimicrobial Stewardship Decision Support App) project co-developed a mobile tool with prescribing professionals to encourage guideline-compliant prescribing. Integrating guidelines from WHO and Sanford, the GADSA app was piloted with 70+ surgeons across three hospitals in Nigeria and demonstrated positive prescribing behaviour change.

Project led by UCL IRDR dPHE. Collaborators: Dr. Laura Shallcross (UCL Institute of Healthcare Informatics), Prof. Andrew Hayward (UCL Epidemiology and Public Health), College of Medicine at University of Lagos, Swinburne University of Technology Australia, London School of Hygiene and Tropical Medicine, and prescribing professionals from the Teaching Hospitals of Lagos University, Lagos State and Niger Delta. Funded by ESRC.

2020 - ONGOING

GADSA FOR NHS: GAMIFIED MOBILE APP TO ENCOURAGE BETTER ANTIBIOTIC PRESCRIBING IN THE UK

Antibiotics are the most widely prescribed antimicrobial agents to treat infection. Unlike other drugs, the more they are used, the less effective they become. Antimicrobial Resistance is a prominent worldwide threat limiting ability to treat common infection and disease.

This project builds on previous work in Nigeria for which we developed and successfully piloted a novel gamified mobile app for surgeons prescribing antibiotic prophylaxis (GADSA). Through this work, we aim to adapt the existing technology for use in the NHS setting and expand clinical coverage across the UK.

Project led by UCL IRDR dPHE. Collaborators: Prof.

Kate Jones (UCL CBER), UCL Hospital NHS Foundation Trust (UCLH). Funded by EPSRC IAA.
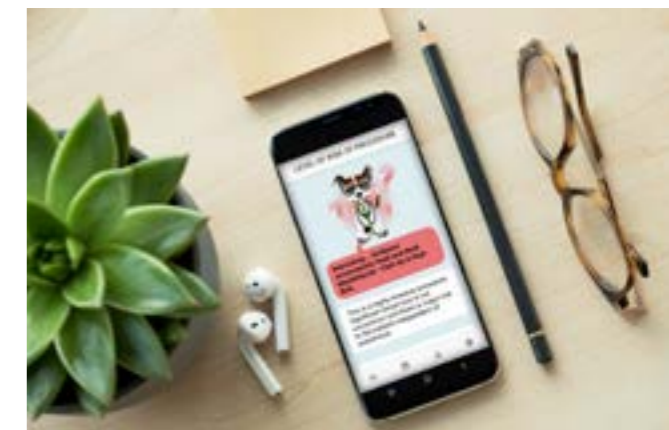
2017 - ONGOING

PASS: ENCOURAGING BETTER USE OF ANTIBIOTICS THROUGH CHANGING BEHAVIOUR

In order to slow down the development of antibiotic resistance, we need to reduce the number of antibiotic prescriptions. It sounds easy, but changing any behaviour is difficult, let alone a really complex behaviour like antibiotic prescribing. Complex issues like this require us to think differently about how we go about doing the research.

This large collaborative project aims to increase antibiotic prescribing stewardship through behaviour change, including surveillance of prescription levels in primary care, secondary care and care homes, and the co-creation and development of targeted intervention bundles.

Project led by Prof. Andrew Hayward (UCL Department of Epidemiology and Public Health) and Dr. Laura Shallcross (UCL Institute of Healthcare Informatics) with collaborators across UCL, Royal College of Arts, University of Leicester and a network of healthcare professionals. Funded by ESRC.

Theme 2: Antibiotic resistance and prescribing

2019 - ONGOING

DR-TB GENIE APP: HELPING DOCTORS TO MAKE INFORMED PRESCRIBING DECISIONS IN SOUTH AFRICA

Drug-resistant (DR) tuberculosis (TB) is the most costly and complex form of TB to manage. South Africa has the 3rd highest number of notified cases of DR-TB and high rates of HIV co-infection. New guidelines for DR-TB have increased the complexity of management which is a barrier to implementation of the decentralised model of care.

In this project we are developing and piloting a smartphone application that provides clinical decision-making support for inexperienced healthcare workers managing drug-resistant TB in adults and children with or without HIV co-infection in decentralised in South Africa. We are establishing a network to support the wider evaluation and implementation across Africa and in other ODA countries.

Project led by Dr. Hanif Esmail (UCL Institute of Global Health). Collaborators: University of Witwatersrand, University of Stellenbosch and medical professionals working across the care system in South Africa. Funded by GCRF and the Royal College of Physicians.

2010 - ONGOING

EDUGAME4ALL: FUN AND INNOVATIVE GAMES TEACHING CHILDREN ABOUT BUGS AND GERMS

Educational games for children across Europe. Development and evaluation of two distinct education games for junior and senior children teaching hand and respiratory hygiene and antibiotic resistance launched in September 2009 with high acclaim. This was covered by press and media as a unique educational initiative for children.

Project led by UCL IRDR dPHE.Collaborators: Andreea Molnar (Swinburne University, Australia), Initially funded by the EC FP6 programme.

Theme 2: Antibiotic resistance and prescribing

2006 - ONGOING

iNRIC: PROVIDING A 'ONE-STOP SHOP' FOR INFECTION CONTROL PROFESSIONALS AND TRAINEES

The iNternational Resource for Infection Control (www. nric.org.uk) is a single access point to information and guidelines on infection and control for medical professionals and trainees requiring up-to-date evidence-based information in the infectious disease domain. In 2012, iNRIC was successfully evaluated in terms of impact on clinical practice and has since served over a million users from 159 countries.

Improving Infection Prevention and Control (IPC) practice

can significantly decrease mortality, improve health outcomes in city and rural settings and dramatically increase the capacity of health systems in low-to-middle-income-countries (LMIC).

Project led by UCL IRDR dPHE. Collaborators: Sue Wiseman (iNRIC), Dr. Katerina Stavrianaki (UCL IRDR), Development originally funded by the UK Department of Health and Social Care and EPSRC IAA.

2014 - 2016

iNRIC MEETS ICAN: INFORMATION NEEDS OF INFECTION CONTROL PROFESSIONALS IN AFRICA

Improving infection prevention and control in Africa is key to increasing patient safety, lowering risk of outbreaks, hospital acquired infections and along with antibiotic stewardship, help drive down the high rate of antibiotic resistance across the continent. Ensuring that infection control professionals have access to the guidance they require for reference, training and at the point of care is vital.

Through a collaboration with the Infection Control Africa Network (www.icanetwork.co.za), we led an information

needs assessment engaging 250+ African prescribing professionals. Results of this project informed the development of a section on the iNRIC website with outreach to Africa.

Project led by UCL IRDR dPHE. Collaborators: Dr. Katerina Stavrianaki (UCL IRDR), ICAN University of Stellenbosch, South Africa and the College of Medicine, University of Lagos, Nigeria.

Theme 3: Infection Prevention and Control

2020 - ONGOING

MY ACTIVITY JOURNAL APP

In Spring 2020, governments around the world-imposed lockdown regulations in order to slow the spread of COVID-19. Lockdown during the COVID-19 pandemic meant that people had to rapidly adapt their lifestyles to maintain a sense of normality. The benefits to health and wellbeing from keeping a journal are well-evidenced in the psychology literature.

My Activity Journal is a mobile app launched by the dPHE team during the COVID-19 lockdown to support the citizens. Later, the project was expanded in collaboration with Dr Adrian Brown to support people living with obesity. The app has been redesigned and customised based on inputs and feedback from the viewpoint of five people living with obesity through three phases of focus groups.

In this project, we developed a gamified journaling, wellbeing and research app to help people keep a log of their activities during the pandemic and source inspiration for new activities from others. Designed in collaboration with students from UCL Computer Science and experts in digital graphics, using information gathered by our 6000+ participant survey, the app effectively promotes moments of personal reflection as well as encouraging social interaction and connection. The app now has over 1000 users and goes hand-in-hand with a social media competition using #MyActivityJournal and #MyLockdownJournal which complements the app by sharing and inspiring positive messages, journal entries and activities.

Project led by UCL IRDR dPHE.

2020 - ONGOING

ZOOM OR NOT TO ZOOM: UNDERSTANDING LIFESTYLE CHANGE DURING LOCKDOWN FOR COVID-19

The lockdown regulations imposed around the world during the COVID-19 pandemic required large proportions of the global population to remain at home to slow the spread of the disease. People around the world found more and more innovative ways to keep active, to stay entertained and to connect with those important to them.

This project involved six online surveys carried out between April 2020 and July 2021. 4,992 participants were engaged in and contributed to 12,871 responses.

The survey were asked about the lifestyle activities that individuals engaged in during a typical week in different phases of pandemic and lockdown. Survey data was analysed for trends in the types of activities undertaken, the changes in frequency and way, emotional adaptation, and the association of changes to policy background. Qualitative follow up study will reveal the impact of lockdown and social distancing periods from gender perspective.
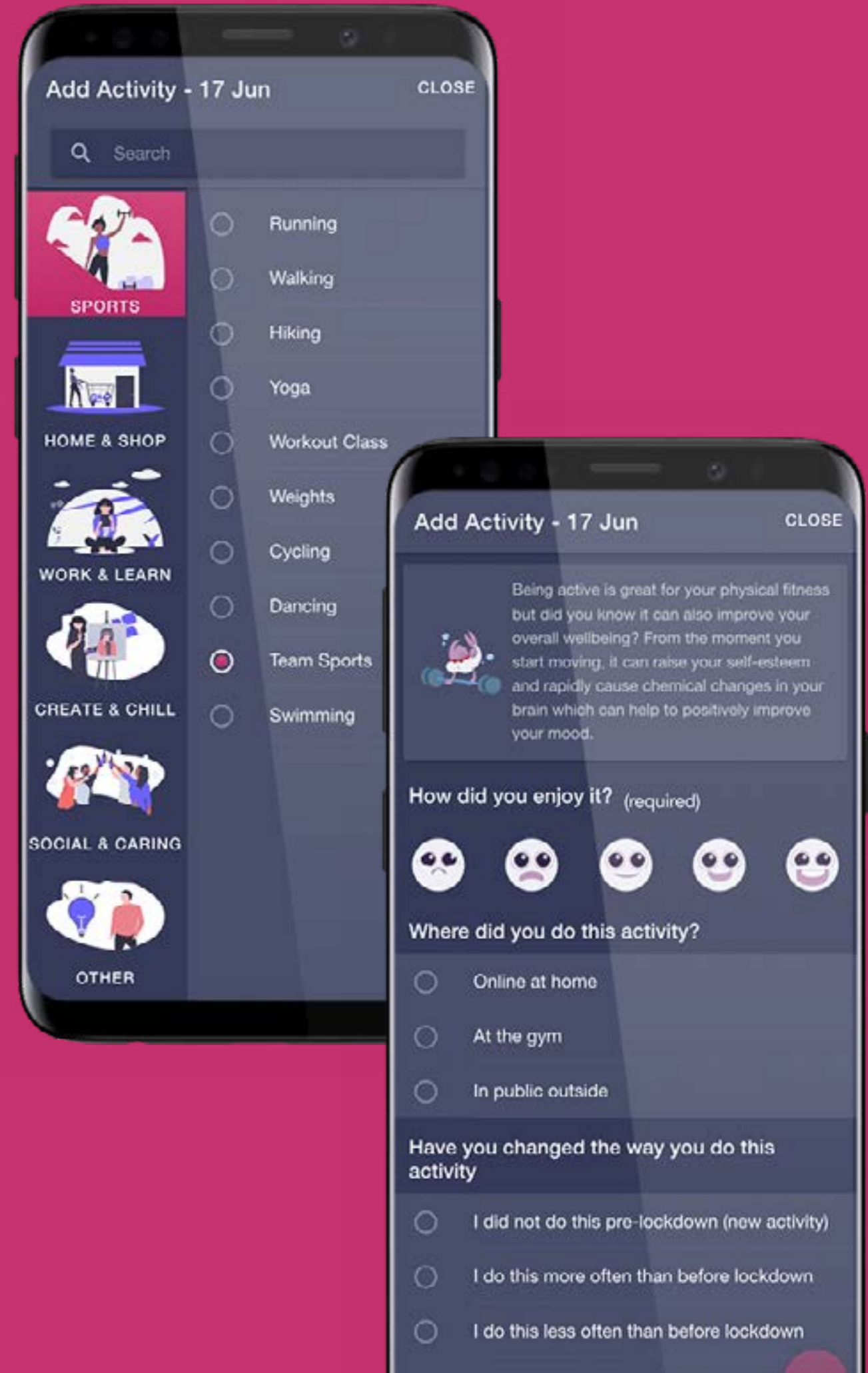
2020 - ONGOING

COVID-19 ON TWITTER: CAPTURING SOCIAL MEDIA CONVERSATIONS DURING THE COVID-19 PANDEMIC

COVID-19 social media discourse: Mapping trends and key terms shared around the world on social media during the pandemic in 2020.

The COVID-19 pandemic saw an incredible rise in the amount of virtual connections being made through the use of technology. Looking more closely at the data collected on social media platforms, gives a unique snapshot of the themes and topics being discussed across the world.

This project assessed trending topics and key terms in relation to the epidemic curve for COVID-19 across multiple counties. Working in collaboration with the WHO, colleagues from across the dPHE network and Master's degree students from UCL IRDR, searches of data drawn from social media platforms (e.g. Twitter) were analysed for keywords and terms across multiple different languages.

Project led by UCL IRDR dPHE. Collaborators from the Universitat Pompeu Fabra, Barcelona, World Health Organisation.

2020 - ONGOING

COVID SGIS AND IRRD-PE: MAPPING THE SPREAD OF THE COVID-19 PANDEMIC IN BRAZIL

COVID-19 systematic mapping: early warning and prediction of future pandemics in Pernambuco. The first confirmed case of COVID-19 in Brazil, was recorded on the 25th February 2020. Brazil was the epicenter of the pandemics in May and June 2020 - and the response was led by state governors.

Working with colleagues at the Universidade Federal de Pernambuco (UFPE), dPHE contributed to predicting models for the epidemics using artificial intelligence and thermal drones through programmes COVID SGIS and IDDR-PE (Instituto para Reducao de Riscos e Desastres de Pernambuco)

Project led by Universidade Federal de Pernambuco (UFPE) - COVID SGIS and LIKA Institute in UFPE leading IRRD-PE initiative. Collaborators UCL IRDR dPHE

Theme 4: COVID-19
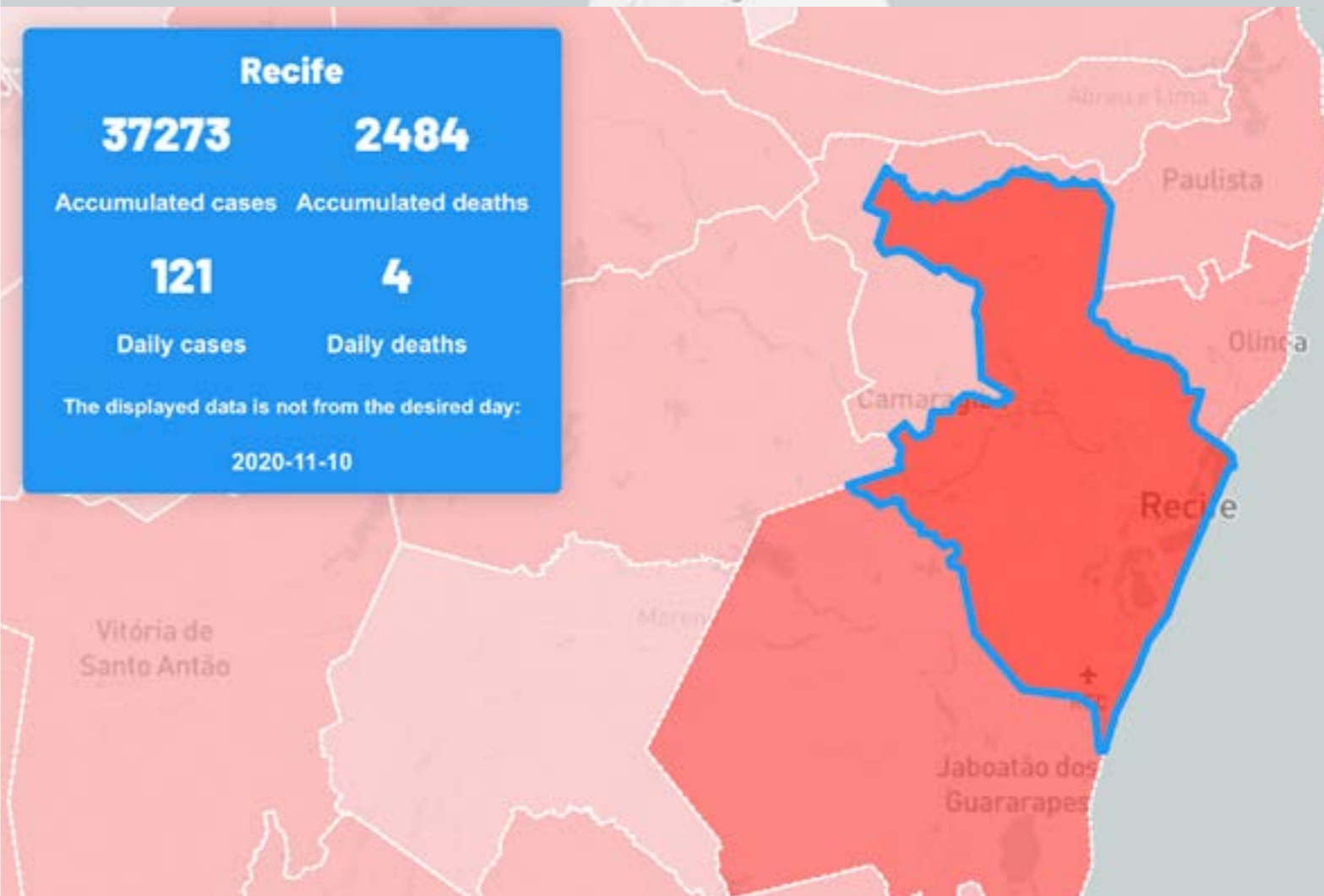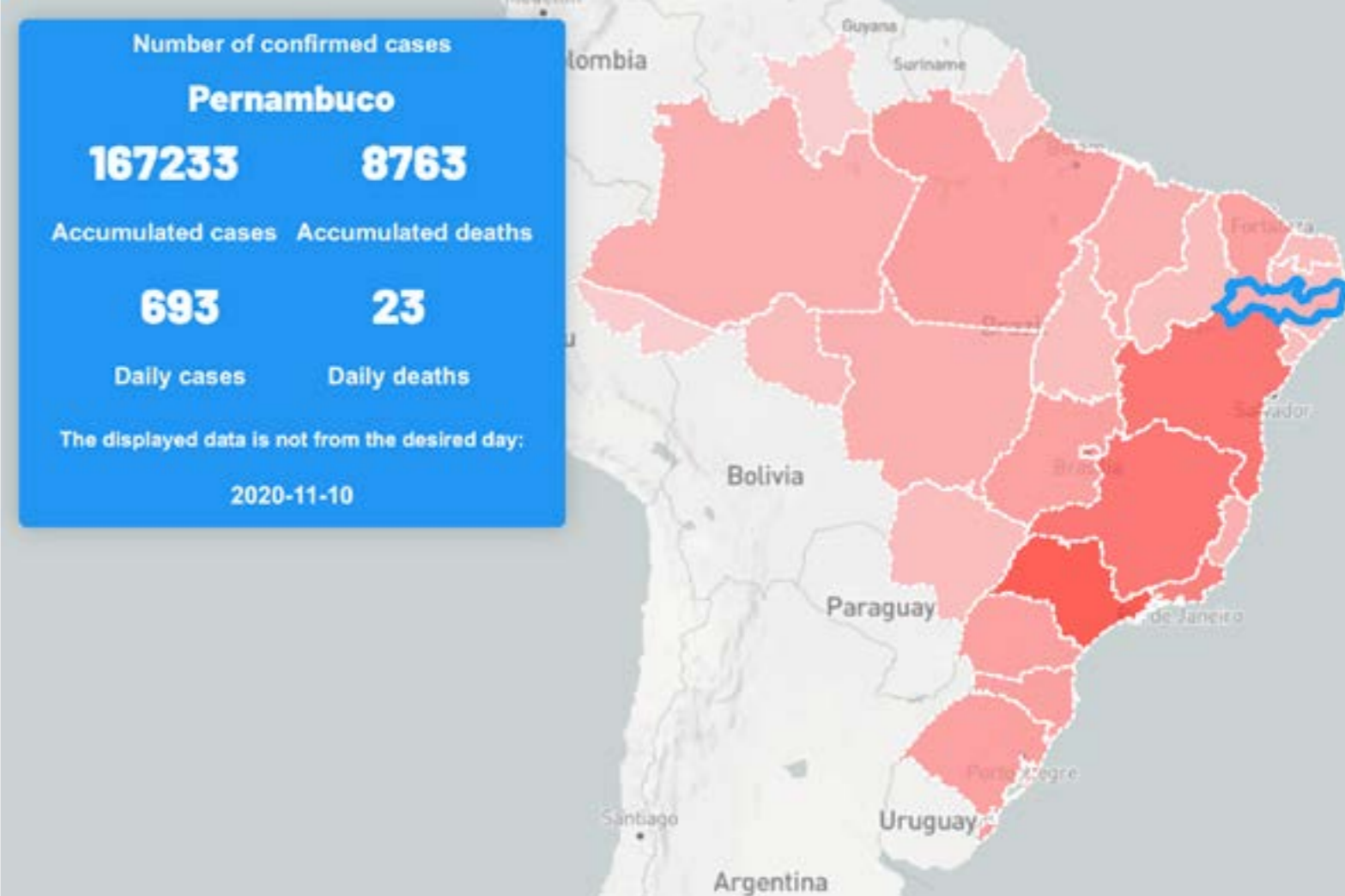
2020

SYMBIOTIC: REDUCING MALAYSIA'S PLASTIC WASTE THROUGH COMMUNITY INTERVENTION

Less than 25% of Malaysia's annual 42M tonnes of municipal solid waste (MSW) is recycled. The organic fraction represents a wasted 13.1TWh while 6.3M tonnes of plastic ends up in landfill annually.

The SYMBIOTIC project explores the social and industrial synergies in valorising Malaysia's organic and plastic waste streams with strong, complementary partners addressing Malaysia's waste and recycling challenges. It will investigate the integration of scalable, demonstration-ready technologies with community engagement strategies to create a circular economy (CE) model that reduces poverty and social/gender inequality. The project's focus was on Sandakan, a poor coastal area with inadequate waste infrastructure and high levels of pollution.

Project led by UCL IRDR dPHE and LEAP Micro AD. Collaborators: University of West London, Future Alam Borneo, LAX Global Resource, Arkitrek and community leaders and members from the region of Sandakan. Funded by Innovate UK Newton Ungku Omar Fund.

2015 - ONGOING

MEDI+BOARD AND DATA SANS FRONTIERS: MAKING SENSE OF BIG DATA FOR PREDICTING OUTBREAKS AND EPIDEMICS IN THE MIDDLE EAST

The aim of the Medi+Board initiative was to develop a dashboard to bringing together heterogeneous data streams for modelling, prediction, early warning and rapid response to outbreaks and epidemics. In collaboration with MSF, this project explored ways to increase knowledge exchange around data sharing for humanitarian emergencies in the Middle East.

Project lead by UCL IRDR dPHE. Collaborators: Prof Muki Hackey (UCL Extreme Citizens Science), Medicines Sans Frontiers, Palestine Red Crescent Society. Funded by EPSRC Knowledge Exchange

2015 - ONGOING

CHARACTERIZING SPILLOVER RISK AT THE HUMAN-ANIMAL INTERFACE IN SOUTH AFRICA

Project lead by EcoHealth Alliance, US and UCL dPHE.

Zoonotic disease emergence is driven by direct and indirect interactions between humans and animals. I aim to identify mechanisms of zoonotic disease emergence by understanding the specific human behaviors that bring people into contact with animals. My project focuses on communities in rural South Africa who raise livestock, and who live near bat species which are known hosts of zoonotic viruses. I will use qualitative and quantitative survey methods to understand the extent to which community members interface with animals, including through their built environment, livelihood, or as a food source. I will also collect data on knowledge, attitudes, and beliefs regarding animals and disease. This survey data will be paired with serological data which measures viral exposure history. Ultimately, I hope to identify risk factors and potential mechanisms for disease transmission of known and unknown viruses.

Theme 5: Outbreak prediction and surveillance

2020 - ONGOING

THE DEVELOPMENT AND EVALUATION OF BEHAVIOR CHANGE THEORY-BASED SOCIAL MEDIA INTERVENTIONS FOR ADDRESSING VACCINE HESITANCY

Interventions informed by behavior change theory and delivered via social media platforms offer an important opportunity for addressing vaccine hesitancy. The aim of this project is to systematically combine evidence, theories and social media tools to develop such interventions.

Addressing the influenza vaccination hesitancy among the Chinese college students study in the UK has been selected as a case study due to the great demand and appropriate environment (frequent social media usage and high penetration rate). A WeChat (a Chinese social media platform) intervention will be designed using Behavior Change Wheel (BCW) and User-Centred Design principles (UCD). A quasi-experimental study will be conducted to evaluate its effectiveness in winter 2022.

Project lead by UCL dPHE. Collaborators: Southeast University (Nanjing, China)

Theme 6: Vaccine hesitancy
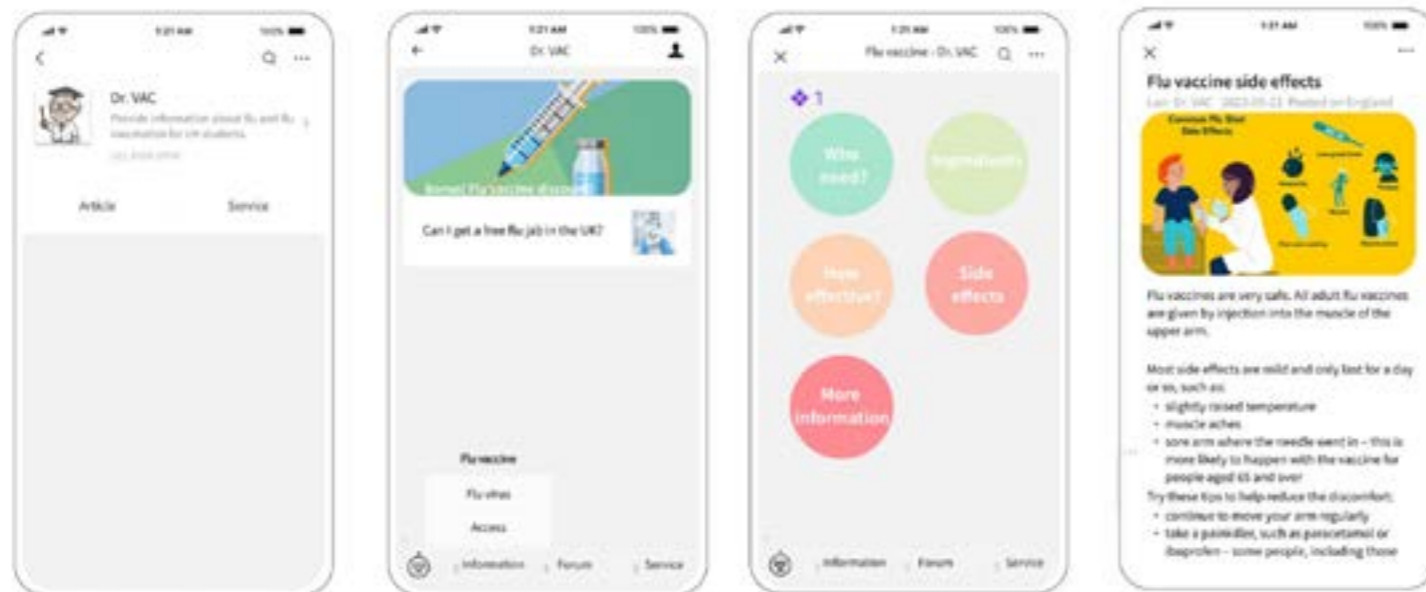
2017

MANTRA: MAKING IMPACT ON HEALTH OF THE MOST VULNERABLE COMMUNITIES AND DISADVANTAGED WOMEN IN LOW-INCOME SETTINGS THROUGH MOBILE AND DIGITAL TECHNOLOGY


After the Nepalese earthquakes in April 2015, it became even more challenging for health workers in Nepal to provide support for women who needed it. As communication before, during and after earthquakes and landslides was a major difficulty, we aimed to provide educational content as learning through gaming. This can be beneficial for engagement and immersion.

The app was designed with 3 modules: maternal health, neonatal health and geo-hazards. It was particularly challenging to build a prototype app in just a few months, but this was achieved through solid team effort. We designed the app with: No text (for those unable to read); no voice; intuitive interaction with the phone because written help could not be included; a tutorial for Drag and Drop (for those unfamiliar with smart phones); and with

culturally appropriate graphic design.

The pilot app was tested among focus groups and local women and qualitative research was undertaken across two communities providing detailed insights on risk knowledge and understanding, health needs, and opportunities to strengthen readiness to respond to humanitarian emergencies.

Theme 7: Serious games for maternal and neonatal health
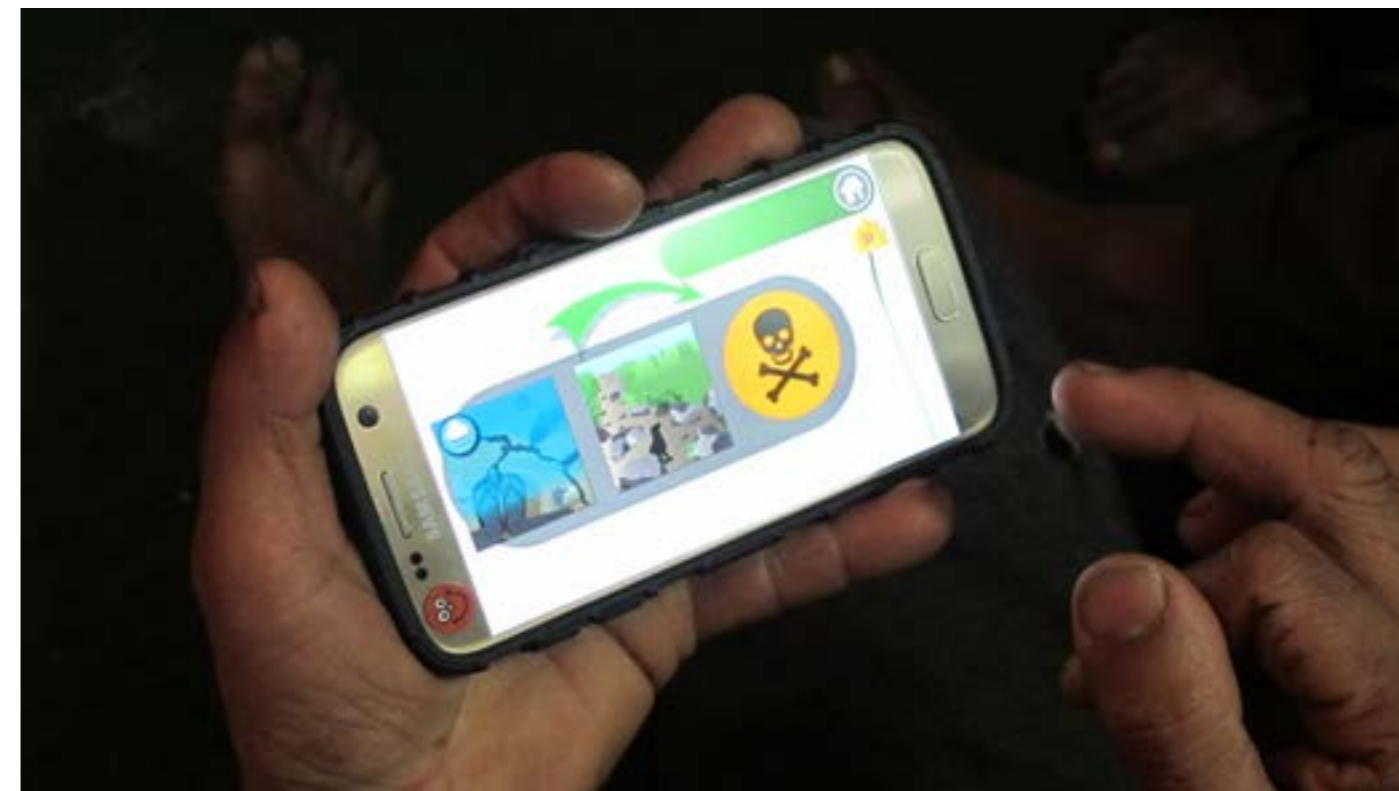
Taught programmes

MODULE DIGITAL HEALTH – EPIDEMICS AND EMERGENCIES IN THE ERA OF BIG DATA

Available to both undergraduate and postgraduate students at UCL, this module introduces the key concepts of digital public health. Students become familiar with the fundamental principles of public health, global health, disease surveillance, epidemic intelligence, emergencies, public health behaviour change interventions, and risk communication. Aimed at postgraduate students with a science degree or medical sciences degree, the module is of particular interest to those seeking further understanding of new technologies for public and global health, emergencies and big data challenges. To find out more and to apply: https://bit.ly/3cAQopd

MODULE : GLOBAL HEALTH INTRODUCTION

The Global Health Introduction module is a new optional module for students on the BSc in Global Humanitarian Studies. The module introduces the key concepts of global health and develops skills needed to study the subject. Global health will be considered in the context of humanitarianism and inequalities. We will ask what is global health? and what are the key global health issues? The module will also introduce One Health and how does studying health in a multidisciplinary and collaborative way across sectors, political boundaries and at different political levels provide an increased opportunity to promote positive change.

This module will introduce the study of health systems, including governance, structure and financing. Students will learn to compare various national health systems, including from high income and low income countries in order to understand how these shape healthcare provision. It will include the study of different global health policy actors, the role of the World Health Organization (WHO) in shaping policy globally and for individual countries, and the role of other government and non-government organisations in health policy making. Other topics include global health trials and the different types of evidence used in global health will be covered. Health will be placed in the context of the sustainable development goals investigating the relationship between health and development. Key areas of global health will be considered including maternal and child health, non-communicable and communicable diseases, water, sanitation and hygiene and the health impacts of climate change The module will also further consider health responses to crises, investigating some recent examples of practice in disaster.

COMING SOON: MSC IN DIGITAL PUBLIC HEALTH IN EMERGENCIES

At present, there are few opportunities for the technical workforce responsible for creating the 'digital' (e.g. programmers, data scientists, statistical modellers) and the healthcare workforce tasked with deploying solutions into the 'real world (e.g. healthcare professionals, public health and agency workers) to come together. The forthcoming MSc in Digital Public Health in Emergencies will establish a much-needed dedicated accredited training pathway for traditionally technology-based disciplines (e.g. computer science, data science) looking to work in public health, and for health disciplines (e.g. nursing, applied health) interested in the development and deployment of technologies for global health emergencies.

COMING SOON: SUMMER SCHOOLS

Coming soon - We are currently preparing a dPHE Summer School curriculum which we anticipate will be available in the near future. The structure of the course has been designed for those with a broad interest in the development, implementation and evaluation of digital technologies for public health in emergencies and with professional schedules in mind; easily digested, accessible and flexible. Our aim is to empower participants with the latest evidence-based research and case studies from real-life examples of where digital technologies have been developed and deployed in the field. Watch this space!
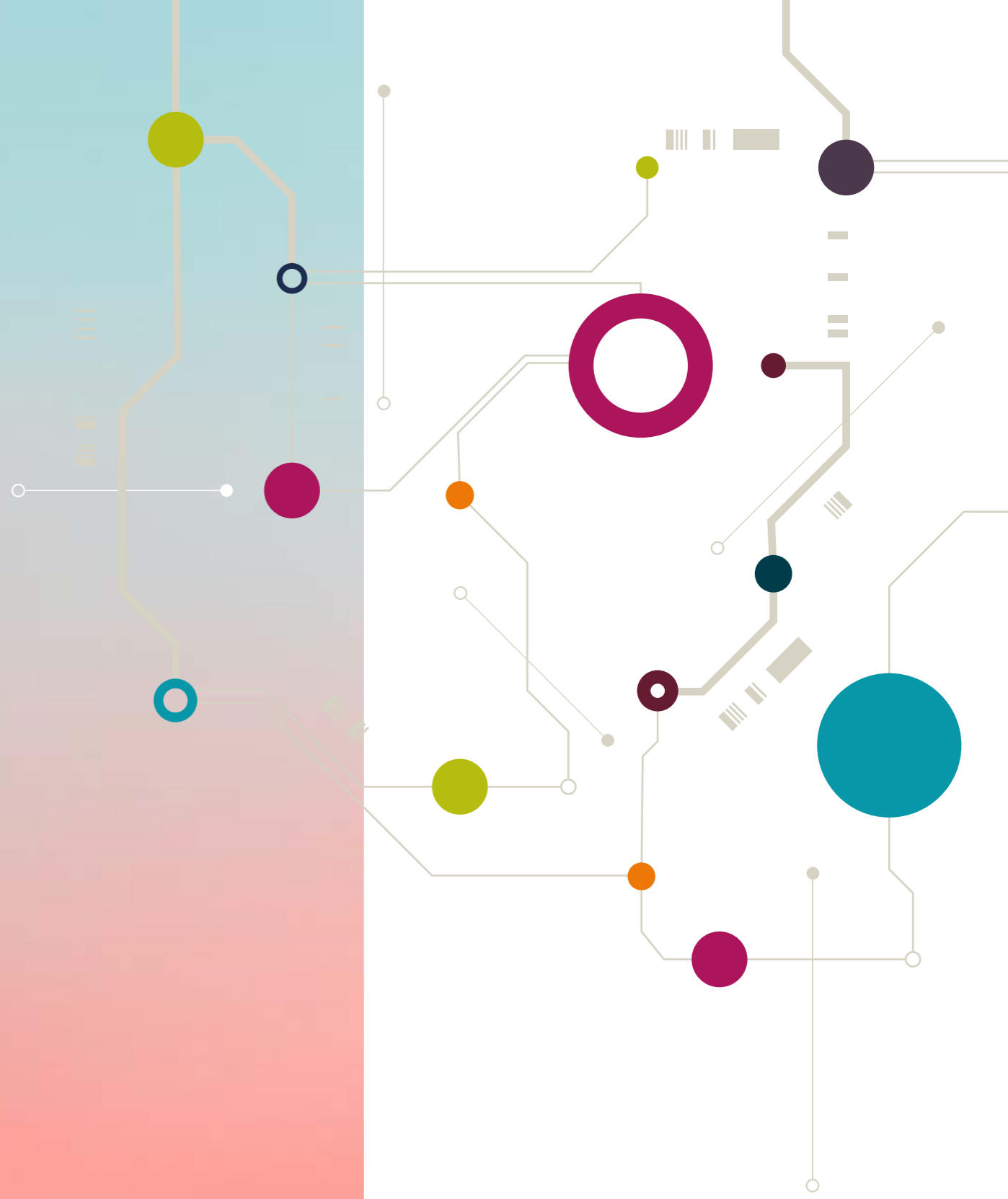
Impact

From improving the mental wellbeing of people in isolation during UK lockdowns to guiding the complex decision-making of doctors in South Africa, our innovative apps, programs and trainings are delivering cutting edge public health techniques around the world. The real-world impacts of our projects are sparking positive change across the field of digital public health and have been recognised by multiple awards in 2020.

MY ACTIVITY JOURNAL AND ZOOM OR NOT TO ZOOM PROJECT

Our journaling and wellbeing app has been downloaded by over 1000 UK and international citizens during the COVID-19 pandemic. Encouraging wellbeing activities and collecting data to inform public health policy, our app and complementary online survey, completed by over 6000 participants, provide structure, inspiration and understanding when the pandemics restrictions were disrupting people's lives in the UK and abroad.
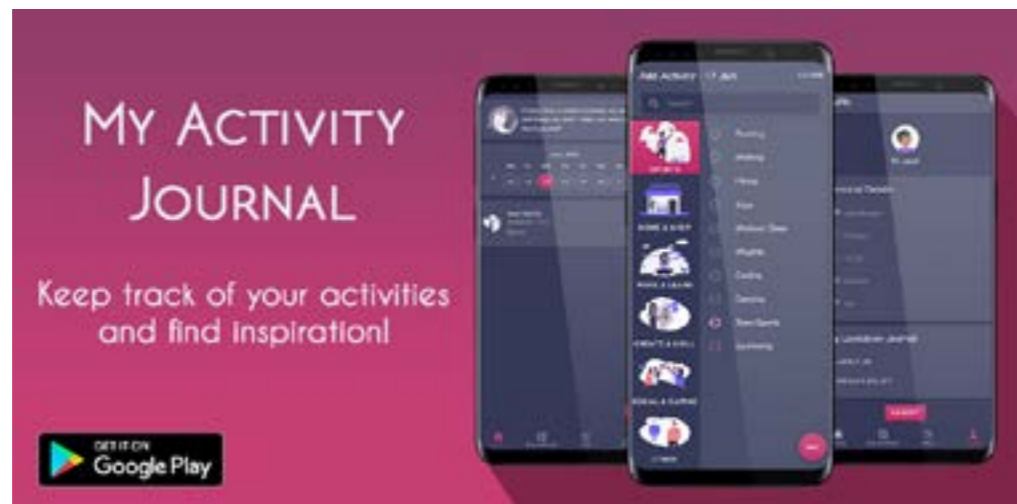
GADSA PROJECT: DEPLOYMENT IN THE NHS TO EXPAND THE INTERVENTION AND DEMONSTRATE IMPACT IN HIGH INCOME SETTINGS

This app was successfully evaluated in three hospital sites in Nigeria and is the first and only AMR app achieving behaviour change at the point of care! The app's huge potential has attracted attention from a number of international antimicrobial resistance societies, the NHS and industry, such as BioMerieux, and was 'Highly Commended' in the UK IT Industry Awards 'Healthcare Project of the Year 2020'. The team are working on partnerships to scale up GASDA across Africa and Europe.

MANTRA PROJECT

This project worked with Nepalese Field Community Health Volunteers, geological experts and local women and successfully developed and tested a pilot app. Findings were shared via exhibitions in the local rural area, Kathmandu, and London, as well as through Networking Workshops in Kathmandu. This project radically brought maternal and neonatal health knowledge to disadvantaged woman in a very deprived part of the world and was nominated for a Diversity Project of the Year (2017).

ZIKA PROJECT

An innovative web- and mobile-phone application was developed to support the environmental health authorities in Brazil for early-warning against deadly mosquitoes that cause Zika and Dengue. Extensively tried and tested in focus groups, these tools will soon be used in everyday surveillance work. In collaboration with UCL's Centre for Analytics & Spatial Analysis (CASA) and the British Red Cross, we digitally mapped a site in Brazil in order to successfully understand residential areas' mosquito infestation levels for the first time. Pilot of the App and IoT in Madeira, Portugal increasing global impact of innovative technology for mosquito-borne disease surveillance. Due to the continued success and impact of this research, it was recently awarded additional funding to evaluate the impacts of broader climatic and environmental changes on breeding habitats for mosquito-borne arboviruses in Northeast Brazil.

iNRIC PROJECT

Since its establishment in 2005, the iNRIC has developed into a comprehensive cross-platform digital intervention (website, tablet, mobile app) improving evidence at the point of care. The NRIC has become a leader portal for healthcare evidence dissemination, delivering information to over a quarter of a million users from 159 different countries, having a positive impact on 53% of visits and ranking within the top-10 results in Google searches for infection-related terms. It has partnerships with WHO, International Federation of Infection Control (IFIC) and Infection Control African Network (ICAN) and has led to the award winning innovative GADSA app.

THANK YOU!
SEE YOU NEXT YEAR

SIGN UP TO OUR
NEWSLETTER FOR DPH
CONFERENCE AND OTHER
NEWS & EVENTS

#DPH2019

@UCL_dPHE

Events and Public Engagement

3RD dPHE ANNIVERSARY AND MEWAR PROJECT ANNUAL MEETING

This interdisciplinary workshop held in July 2022 brought together speakers to discuss the challenges and opportunities of Digital One Health in the Era of Global Warming. A side event was the MEWAR Project Annual meeting. Professor Geraint Rees (VP Research, Innovation and Global Engagement) gave the closing remarks for the event

dPHE LAUNCH EVENT: 1ST NOVEMBER 2018

Attended by more than 120 people, UCL dPHE was launched on 1st November 2018 with a strategic panel debate and a keynote talk delivered by Professor Virginia Murray the Head of Global Disaster Risk Reduction, Public Health England. Professor David Price (VP Research) and Professors David Lomas (VP Health) delivered Welcome and Closing remarks. https://blogs.ucl.ac.uk/irdr/2018/11/08/launch-event-for-the-ucl-irdr-centre-for-digital-public-health-in-emergencies-dphe/

dPHE 2ND ANNIVERSARY AND PROFESSOR KOSTKOVA INAUGURAL LECTURE: 26TH JANUARY 2021

Having just won the Team of the Year 2020, UCL dPHE Centre celebrated the 2nd anniversary of the Centre and success of the new innovation contributing to the fight against COVID-19 by a virtual event 'Beyond COVID-19: digital Public Health in Emergencies' on 26th January 2021. Prof Kostkova, who just received the Innovator of the Year 2020 Award (for the second year in a row), delivered her inaugural lecture, followed by a strategic panel with a line-up of international leaders from WHO, Wellcome Trust, Brazil, Malawi. The event was welcomed Prof David Lomas (VP Health) and Prof Ivan Parkin (MAPS Dean) who delivered the welcome address while Prof Peter Sammonds (IRDR Director) closed the event.

DPH ANNUAL CONFERENCE

Our annual flagship event is The International Digital Public Health Conference series ('DPH'); a world leading annual interdisciplinary event on research and innovation in digital health. In 2018, the DPH gained APHEA (Agency for Public Health Education Accreditation) Training and Educational Event accreditation lasting for 3 years and this showcases the measure of quality and international recognition for our work. For more information on the conference please visit www.acm-digitalhealth.org

In 2019, we partnered with the European Public Health Conference to deliver the 9th edition of the DPH conference. We welcomed more than 200 delegates

to a very sunny Marseille (France) with the audience coming from across healthcare, industry and policy. The programme kicked off with the Young Researchers Forum run in collaboration with ASPHER (Associate for Schools of Public Health in the European Region) and featured exciting plenary sessions on the ethical challenges facing AI and Big Data, challenges for upscaling technology and innovation across Europe and the role of social media in online anti-vaccination movements. Our programme also launched the European mHealth Knowledge and Innovations Hub – a bold new partnership for the future of mHealth in WHO European Region.

OUTREACH EVENTS

In the first week of June 2019, dPHE participated in the facilitation of an interdisciplinary workshop, the **Global Citizenship Programme Outbreak! 2019**, for under- and postgraduate students from UCL and beyond. The session focused on the importance of taking advantage of the digital world we live in, and opportunities of utilising reliable data from social media such as Google, Facebook, Twitter and many more, to use as a form of surveillance for accessing information regarding infectious disease outbreaks and the population's health in general.

WORKSHOPS AND SYMPOSIA

In July 2019, we partnered with the **UCL Institute of Healthcare Engineering** to host the first **Global Healthcare Engineering Symposium** at UCL. The symposium was a way to bring together researchers in global health and healthcare technologies to share their experiences, opportunities and challenges. The day provided a springboard for our efforts to identify, support and strengthen the community at UCL around global healthcare technologies. More info

In October 2019, dPHE participated in the **UCL It's All Academic Festival** to give the public a glimpse into the world-changing research taking place within UCL's walls. Prof. Patty Kostkova gave an open talk on digital public health and the dPHE team gave members of the public live demos of the apps and mobile games we have developed through our research projects. More info

In November 2022, UCL dPHE again partnered with the UCL Institute of Healthcare Engineering – Global Delivery Group to host a workshop: 'Data-enabled Society for Health: Challenges and Opportunities' discussing how do surveillance, data ownership and control of privacy impact healthcare data and service delivery. The vibrant event including speakers from the NHS, UK HAS, World Organisation for Animal Health (WAHIS) and UCL. The event was closed by Professor Geraint Rees (VP Research, Innovation and Global Engagement).

MASTER CLASSES

In June, as part of the **UCL IRDR Humanitarian Summit 2019**, we hosted a workshop on Infectious diseases and the role of digital public health. Participants were introduced to the key concepts of digital public health including basics of underlying knowledge management, semantic modelling, international disaster surveillance IT systems, early warning and response to disease outbreaks and emergencies, social media, serious games for public health interventions and big data challenges.

Masterclass in Public Health and Digital Disaster Response: Convened by IRDR dPHE Director Prof Patty Kostkova, this masterclass was a unique opportunity to learn how to manage a public health emergency and respond to nature and manmade disasters using social media and digital data. We were delighted to host Dr. Arnold Bosman (Medical consultant in public health and founder of 'Transmissible') and Prof Carlos Castillo (Universitat Pompeu Fabra, Barcelona)

SKILLS BUILDING EVENTS

In November 2019, dPHE co-hosted an interactive session with **Missing Maps and the British Red Cross** as part of the DPH 2019 Conference in Marseille. Led by Dr. Katherine Roberts-Hill and supported by Medicins Sans Frontiers, workshop participants contributed to a live opensource mapping project to help geolocate women as risk of female genital mutilation in Tanzania.
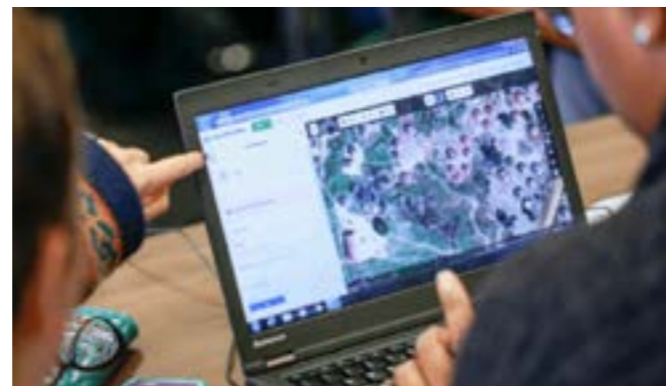
In January 2020, researchers from dPHE (Professor Patty Kostkova and Dr Anwar Musah), UCL Centre for Advanced Spatial Analysis (CASA) (Dr Sarah Wise) and expert mappers from the British Red Cross (Katherine Roberts-Hill and Jiumei Gao) organised the first **UCL-ZIKA Mapathon: Mapping of Residential Areas for Mosquito Surveillance in Campina Grande, Northeast Brazil.** Through crowd participation, the goal was to map out the entire residential areas of Campina Grande, Brazil. More info

PANEL DISCUSSIONS

In July 2019 as part of the UCL IRDR Annual Conference, we hosted: **In-conversation: on Drones for Health Emergencies: Friend or foe?** Prof. Patty Kostkova interviewed invited speaker Jorieke Vyncke (Coordinator of the Missing Maps activities from Medicins Sans Frontiers) on the use of Unmanned Aerial Vehicles (UAVs) or drones in low-income and low resource settings for health emergencies.

KEYNOTES AND INVITED TALKS

MAY-2022 Keynote Speaker: "Saúde Escolas: Projeto de Monitorização em Saúde [SEE_App], launch meeting of the project, Funchal, Madeira, Portugal

APR-2022 Keynote Speaker: World Health Day conference "Our Planet, Our Health" at the Regional Health Directory in Funchal, Madeira, Portugal with a closing address delivered by the Regional Secretary of Health Dr Pedro Ramos, featuring on the regional TV channel

MARCH-2022 Keynote Speaker: Fourth Regional Collaborative Discussion of the Caribbean Community of Practice (CCoP): Behaviour Change and the COVID-19 Response, Bahamas/Jamaica.

OCT-2021 Keynote Speaker: 23rd International Conference of the Catalan Association for Artificial Intelligence (virtual), Lleida, Catalunya, Spain

AUGUST-2021 Keynote Speaker: International Conferences on eDemocracy & eGovernment (ICEDEG) 2021, Quito, Ecuador, online

JUNE-2021 Invited talk, Seminar, University of Porto, Portugal, online

MARCH-2021 Cutting-edge Technologies for a Disaster-free Future, online webinar, UCL & Yamaguchi Japan, Japan

JAN-2021 Invited Panellist: The Rational Animal - The Vaccine Dilemma, The Institute of Art and Ideas

JAN 2021 Invited Panellists: Promotive Digital Health and Well Being in the context of Covid Pandemic - Indian and Global Experience

NOV 2020 Global Symposium, UCL Institute for Healthcare Engineering, UK

NOV 2020 Scaling Digital learning in Global Health and Emergencies, Empower School of Health and University College London, International

OCT 2020 Keynote: International Students' Meeting on Public Health (ISMOPH) and World Federation of Public Health Associations (WFPHA)

NOV 2020 Keynote: 4th Symposium on Innovation in Biomedical Engineering - SABIO IV, Recife, Brazil.

OCT 2020 Keynote: Federal Institute of Pernambuco, Recife, Brazil. National Week of Science and Technology.

OCT 2020 Beyond Boundaries - October 2020, session 9 – Cross-Border Translational Research Post-COVID.

AUGUST 2020 Laboratory of Immunopathology Keizo Asami (LIKA) Webinar, Recife, Brazil

JULY 2020 University of Liverpool, Women's Series.

NOV 2019 Keynote: The III National Conference on Primary Care, Rome, Italy

AUGUST 2019 Keynote: International Symposium on Diagnostics and Therapeutics (SINATER) 2019, Recife, Brazil

AUGUST 2019 University of Sao Paolo (UPS), Sao Paolo, Brazil

JULY 2019 United Nations Development Programme - expert consultant on a rights-based approach to digital technologies and data for health, New York.

NOV 2018 Invited speaker: Professional Certificate in Disaster Risk Reduction, International Centre for Parliamentary Studies (ICPS).

NOV 2018 Clinical Diagnostics and Antimicrobial Resistance: A Multidisciplinary Symposium, organized by International Diagnostics Centre and the AMR Centre at the London School of Hygiene and Tropical Medicine (LSHTM).

OCT 2018 Expert guest and invited speaker at the strategic workshop: 'The Governance of Data in a Digitally Transformed European Society' (the DigiTranScope project), Ispra, Italy.

SEPT 2018 London Conference on Natural Disasters and Child Vulnerability, British Academy, London, UK.

JUNE 2018 Keynote: World Congress on Medical Physics and Biomedical Engineering (Prague, Czech Republic, June 3-8th, 2018).

MARCH 2018 Keynote: 4th International Conference on Information and Communication Technologies for Ageing Well and e-Heath, ICT4AWE 2018 (Funchal, Madeira, Portugal, 22-23th March 2018).

APRIL 2017 Closing Panel Session at the Biovision 2017.

OCT 2016 Grand Challenges annual Meeting, Bill and Melinda Gates foundation, London.

SEPT 2016 Pandemics and Infection Control - Meeting Tomorrow's Threats and Challenges Today, A Public Policy Exchange Symposium, London, UK.

❝❝ We were looking for a team coming together to solve a business challenge, clearly setting out their purpose, process and the end result. This entry was excellent, not just due to the subject matter, but also for the many examples of teamwork, shared vision and mission, the passion for delivery against the odds, and the amazing range of initiatives. Some excellent project descriptions demonstrate the range of skills that this team has, and despite what seems to be a high-pressure environment, the overall impression is a team that enjoys, and takes pride in what they do. **❞❞**

Judges comment on Team of the Year award (Computing Rising Stars Awards):
John Leonard, Research Director at Computing/Delta, commended the team on their work

Professor Patty Kostkova's tweets, quotes in the Evening Standard, covering the abolition of Public Health England (PHE) and the appointment of Dido Harding:

> **In 2013, the Tories restructured the world-class scientifically independent Health Protection Agency and created underfunded Public Health England while cutting public health operation at local level.**
>
> **The decision to abolish PHE in the middle of the deadly Covid-19 pandemics without consultation while the UK Parliament is not sitting is scandalous. Setting up a new National Institute for Health Protection by a merge with dysfunctional private NHS Track and Trace operation under leadership of Dido Harding, who has no expertise in public health, seems yet another purely politically motivated move to shift blame for Government's failures over handing of the Covid-19 crisis.**
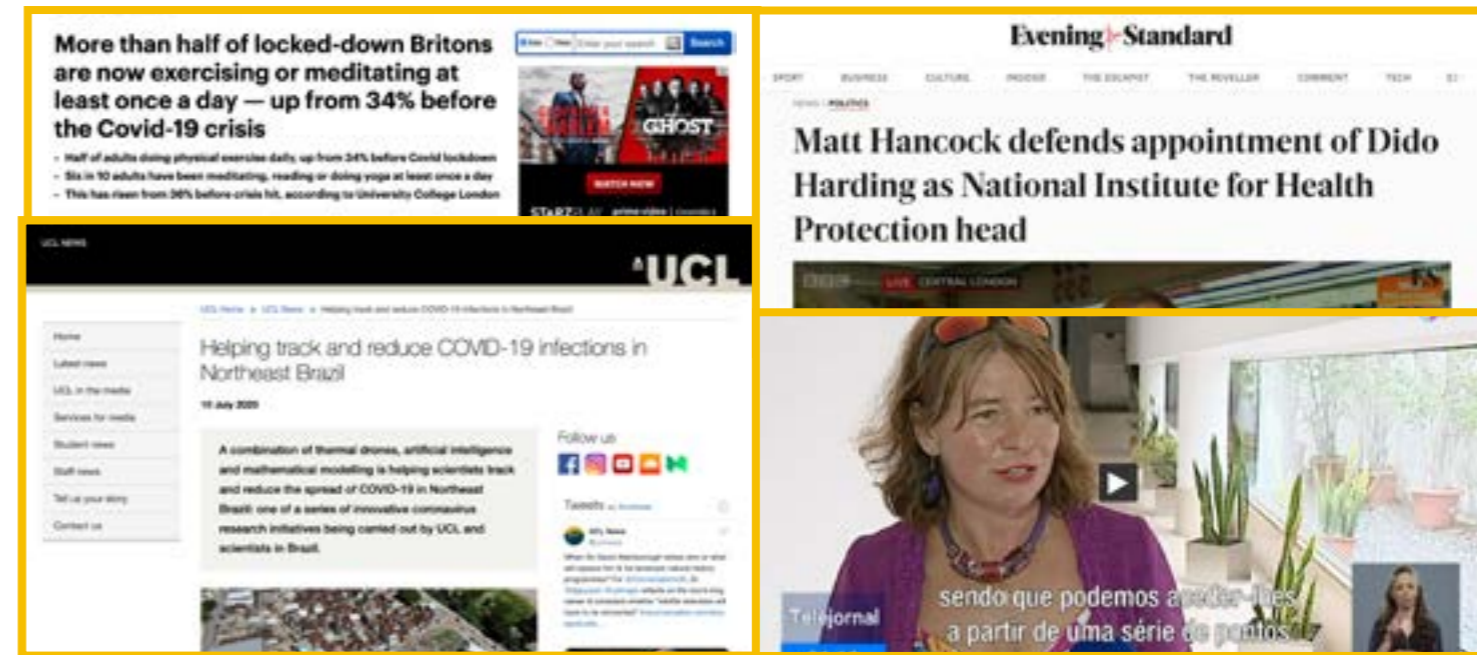
RECENT MEDIA COVERAGE

My Lockdown Journal

- UCL Press: https://www.nature.com/articles/d41586-023-00460-z

- UCL MAPS: https://www.ucl.ac.uk/mathematical-physical-sciences/news/2020/jun/how-are-our-behaviours-changing-lockdown

- Daily Mail Online: https://www.dailymail.co.uk/news/article-8455071/More-half-locked-Britons-exercising-day.html

- The Future Leadership Institute: https://fli.institute/2020/07/08/how-are-our-behaviours-changing-in-lockdown/

- Business | Science - Coronaprofile: To Zoom or not to Zoom? https://sciencebusiness.net/covid-19/news/coronaprofile-zoom-or-not-zoom

Pandemics Preparedness

- UCL Spotlight: https://www.ucl.ac.uk/mathematical-physical-sciences/spotlight-patty-kostkova-ucl-dphe

- UCL Press: https://www.ucl.ac.uk/news/2022/may/opinion-ai-could-help-us-spot-viruses-monkeypox-they-cross-over

World Health Day 2022 – Prof Kostkova's keynote at the Regional Ministry of Health, Madeira

- Maderia TV coverage: https://www.rtp.pt/play/p85/e609658/telejornal-madeira (Minute 4'10)

- Madeira Local Newspaper: https://www.dnoticias.pt/2022/4/6/305106-conferencias-marcam-comemoracoes-do-dia-mundial-da-saude/

- Madeira Local Newspaper https://funchalnoticias.net/2022/04/06/governo-regional-assinala-com-conferencias-o-dia-mundial-da-saude/

PHE Restructuring 2020 - Commentary

- Science Media Centre: https://www.sciencemediacentre.org/expert-reaction-to-speech-by-matt-hancock-on-the-future-of-public-health-and-the-launch-of-the-national-institute-for-health-protection-nihp/

- Evening Standard: https://www.standard.co.uk/news/politics/dido-harding-matt-hancock-national-institute-health-protection-a4528236.html

- Research Professional News: https://www.researchprofessionalnews.com/rr-news-uk-politics-2020-8-creation-of-new-health-body-like-rebuilding-a-ship-in-a-storm/

- Politico: https://www.politico.com/news/2020/08/23/britainhealth-boss-harding-cronyism-40022

Brazil – COVID19 and Zika virus

- UCL Press: https://www.ucl.ac.uk/news/2020/jul/helping-track-and-reduce-covid-19-infections-northeast-brazil

- Brazil TV Channel - Zika Project : https://globoplay.globo.com/v/10380724/

- Youtube - Educational: https://www.youtube.com/watch?v=eSQND-0dJO

Madeira – Mosquito Suveillance

- Madeira Local TV - Prof Kostkova's Interview: https://www.rtp.pt/play/p85/e642644/telejornal-madeira (Minute 18:00)

Awards

COMPUTING WOMEN IN IT EXCELLENT AWARDS

Professor Patty Kostkova won 'Innovator of the Year' at the Computing Women in IT Excellence Awards twice in a row – in 2019 for leading the GADSA project and in 2020 for her role in the My Activity Journal project.

- Innovator of the Year – Prof Patty Kostkova (winner 2020) https://womenintechexcellence.co.uk/womenintechexcellenceawards2020/en/page/2020-winners
- Innovator of the Year – Prof Patty Kostkova (winner 2019)

Finalist nominations:
- Digital Leader of the Year – Prof Patty Kostkova (finalist 2020)
- Graduate of the Year - Georgiana Birjovanu (finalist 2020)
- Team Leader of the Year - Prof Patty Kostkova (finalist 2018)
- Woman of the Year – Prof Patty Kostkova (finalist 2017)
- Diversity Project of the Year – MANTRA Project (finalist 2017)

DPH CONFERENCE PRIZES

2019
- Runner-up Best Partnership: Dr. Caroline Wood on behalf of the GADSA project team
- Runner-up Best Data Driven Innovation: Georgiana Birjovanu on ehalf of the ZIKA project team

2018
- Runner-up Best Partnership: MANTRA. Prof Patty Kostkova on behalf of the MANTRA team

COMPUTING RISING STAR AWARDS

- Won - Team of the Year 2020 – UCL Centre for dPHE
- Georgiana Birjovanu - Finalist - Rising Star Award (Large organisations)

Congratulations
UCL Centre
for Digital Public
Health in
Emergencies –
University College London

"The overall impression is a team that enjoys and takes great pride in what it does."

DPH 2018 INNOVATION PRIZES

- Nomination for Best Partnership: Prof. Patty Kostkova on behalf of the MANTRA project team

Patty Kostkova
University College London

UK IT INDUSTRY AWARDS

- 'Highly Commended' in the category of 'Healthcare project of year 2020' https://www.ucl.ac.uk/risk-disaster-reduction/news/2020/nov/ucl-irdr-dphe-receives-uk-it-awards-commendation

UK IT INDUSTRY AWARDS

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computing

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HIGHLY COMMENDED
UCL CENTRE FOR DIGITAL PUBLIC HEALTH IN EMERGENCIES

PUBLICATIONS

- Kostkova, P., Molnar, A. and Borda, A., 2019. Serious games and participatory research in public health. In Proceedings of the 9th Digital Public Health Conference, Marseilles, France(Vol. 5).

- Musah, A; Rubio-Solis, A; Birjovanu, G; Dos Santos, WP; Massoni, T; Kostkova, P (2019) Assessing the Relationship between various Climatic Risk Factors & Mosquito Abundance in Recife, Brazil. In: Kostkova, P and Wood, C and Bosman, A and Grasso, F and Edelstein, M, (eds.) DPH2019: Proceedings of the 9th International Conference on Digital Public Health. (pp. pp. 97-100). Association for Computing Machinery (ACM): New York, NY, USA.

- Lalvani, P., D'Silva, F., Kumar, B., Teran Castro, J., Brechard, R., Wood, C. and Kostkova, P., 2019, November. Digital Technologies in the Humanitarian Context: DPH Plenary Session. In Proceedings of the 9th International Conference on Digital Public Health (pp. 1-1).

- Laarmann, H., Hamilton, C., Bosman, A., Thiebaut, R., Shah, U.A., Wood, C. and Kostkova, P., 2019, November. The Challenges of Implementing Healthcare Technology and Innovation Across Europe and Beyond: DPH Plenary Session. In Proceedings of the 9th International Conference on Digital Public Health (pp. 3-3).

- Birjovanu, G., Wood, C., Olufemi, O., Ogunsola, F., Okonji, P., Kpokiri, E., Luedtke, S., Shallcross, L., Soriano, D., Lefevre, C., Hayward, A., Molnar, A., NCube, F., Wiseman, S., Kostkova, P., 2019, November. GADSA: Decision Support App for Antibiotics Prescribing in Nigeria. In Proceedings of the 9th International Conference on Digital Public Health (pp. 9-10).

- Paolotti, D., Shah, U., Edelstein, M., Leal Neto, O., Kostkova, P. and Wood, C., 2019, November. Digital Health Innovation: From Proof of Concept to Public Value. In Proceedings of the 9th International Conference on Digital Public Health (pp. 5-5).

- Artus, D., Larson, H. and Kostkova, P., 2019. Role of Social Media in vaccination debate about HPV: the VAC Medi+ Board study. European Journal of Public Health, 29(Supplement_4), pp.ckz185-682.

- Wood, C., Kostkova, P., Olufemi, O., Soriano, D., Ogunsola, F., Lefevre-Lewis, C., Kpokiri, E. and Shallcross, L., 2019. Understanding non-compliance with surgical antibiotic prophylaxis prescribing guidance, in Nigeria. European Journal of Public Health, 29(Supplement_4), pp.ckz186-088.

- Wood, C. E; Olufemi, O.; Ogunsola, F.; Okonji, P.; Kpokiri, E.; Luedtke, S.; Shallcross, L.; Soriano, D.; Lefevre-Lewis, C.; Birjovanu, G.; Hayward, A.; Kostkova, P.; NCube, F.; Molnar, A.; Wiseman, S., 2019. Piloting the gamified antimicrobial stewardship decision support app (GADSA): increasing compliance with guidance for prescription of surgical antibiotic prophylaxis in Nigeria. 5th International Conference on Prevention & Infection Control (ICPIC 2019).

- Mueller, S., Soriano, D., Boscor, A., Saville, N.M., Arjyal, A., Baral, S., Fordham, M., Hearn, G.J., Kayastha, R. and Kostkova, P., 2019. MANTRA: a serious game improving knowledge of maternal and neonatal health and geohazards in Nepal. European Journal of Public Health, 29(Supplement_4), pp.ckz185-329.

- Kostkova, P., Pinheiro dos Santos, W. and Massoni, T., 2019. ZIKA: improved surveillance and forecast of Zika virus in Brazil. European Journal of Public Health, 29(Supplement_4), pp.ckz186-085.

- Ryle, G., Salathé, M., Bonhoeffer, S., Schwitzer, G., Silberg, W.M., Lundberg, G.D., Musacchio, R.A., Szomszor, M., Kostkova, P., Taddeo, M., Floridi, L., Wang, M.T., Gamble, G., Bolland, M.J., Gre, A., 2019. 86 Medical Interviewing. Cambridge Handbook of Psychology, Health and Medicine 5 (29), 387

- Ghezzi, P., Kostkova, P., 2019. 85 Health Information Quality. Cambridge Handbook of Psychology, Health and Medicine 5 (29), 387

- Elimian, K.O., Musah, A., Mezue, S., Oyebanji, O., Yennan, S., Jinadu, A., Williams, N., Ogunleye, A., Fall, I.S., Yao, M. and Eteng, W.E., 2019. Descriptive epidemiology of cholera outbreak in Nigeria, January–November, 2018: implications for the global roadmap strategy. BMC public health, 19(1), p.1264.

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Team

STAFF

PATTY KOSTKOVA is Professor in Digital Health and the Director of UCL Centre for Digital Public Health in Emergencies (dPHE). She was a consultant at WHO, ECDC, Sky, Telefonica. Her research investigates mobile surveillance in Brazil, maternal health in Nepal and antibiotic stewardship in Nigeria and the NHS. During COVID-19, she lead an award winning project My Lockdown Journal. Patty served as the Advisory Board member at ECDC Knowledge Management Working Group and the NHS National Knowledge Service TB Pilot project.

In 2019 and 2020, Patty won the 'Innovator of the Year' Award by Computing Women in IT Excellence Awards and the prestigious Coronaprofile by Business Science, while her team won the Team of the Year 2020 Award by Computing Rising Stars Awards. Patty published over 230 peer-reviewed papers, and is the Editor in chief of Frontiers in Digital Public Health, and General and Scientific Chair of International Public Health Conference since 2009. Her research received an extensive media coverage.

ASSOCIATE ACADEMIC STAFF

DR LISA DANQUAH Lisa is a Lecturer in Global Health at the Institute for Risk and Disaster Reduction. She is interested in the use of digital technologies for contact tracing with a focus on emerging infectious diseases. She works closely with the Centre for Digital Public Health in Emergencies and contributes to the work through a shared interest of improving the use of digital technologies to improve global health, preparedness and response to worldwide emergencies, with her focus being on humanitarian emergencies of emerging infectious disease outbreaks.

DR PUNAM YADAV is the Co-director of the Centre for Gender and Disaster and Lecturer in Humanitarian Studies at the Institute for Risk and Disaster Reduction. She is also a Co-Investigator of the UKRI Collective Fund award – GRRIPP Network Plus (2019-2023) and a close associate of the Centre for Digital Public Health.

ANWAR MUSAH is a postdoctoral researcher at dPHE. He is currently the lead researcher for a project developing app-based mosquito surveillance and early-warning tools for Zika virus. Anwar's interests include applied statistics and application of GIS to problems in Epidemiology and Social Sciences.

KATERINA STAVRIANAKI is a lecturer in Risk Analysis jointly appointed between the IRDR and the Department of Statistical Science at UCL. Her research focuses on natural hazards using a statistical, geophysical and experimental approach and has collaborated with the dPHE since 2018. She has been involved in projects regarding Infection Control in Africa, analysis of the data on the project MANTRA and most recently in our COVID-19 projects.

PHD STUDENTS

AISHA ALDOSERY is a PhD student studying under the supervision of Prof. Patty Kostkova. Aisha's PhD explores the use of IoT (Internet of Things) devices to collect real-time global remote sensing data for mosquito surveillance and early warning systems for Zika virus prediction and rapid response.

LAN LI is a PhD student at dPHE, IRDR. Her research topic is integrating behavioural theory into digital intervention to increase vaccine confidence. She is interested in social media data analysis, digital health and vaccination hesitancy studies.

XIAOHUI SHEN is aPhD student under the supervision of Prof. Patty Kostkova. His research explores about China's Zero-COVID which aims to approac the cases to zero for saving lives. China implemented the COVID policy to contain the virus transmission since the first outbreak in Wuhan, which brought plenty of time for the world to get prepared. In year three of the pandemic, due to inadequate medical infrastructure and low herd immunity in China, China faces endless intermittent lockdowns.

AVA SULLIVAN is a research scientist and PhD student with dual affiliations at University College London, Institute of Risk and Disaster Reduction, department of Digital Public Health in Emergencies, and EcoHealth Alliance, an NGO based in New York City. Ava has her Master's degree in Environmental Health and Disaster Management from Tulane University School of Public Health and Tropical Medicine. Ava is interested in the complex pathways driving viral spillover, and in particular, exposure to animal hosts driven by human behavior. Ava is interested in using qualitative methods to characterize these complex human behaviors and assess risk to prevent future pandemics.

EMMA BACK is a PhD student in dPHE supervised by Prof. Patty Kostkova and Dr. Stephen Roberts at the UCL Institute for Global Health. Emma's research uses mixed methods to explore ongoing perceptions of pandemic risk. Her doctoral project comprises a comparative study covering the UK and two other countries with contrasting experiences of COVID-19.

RESEARCHERS

SUSANNE LUEDTKE is a Senior Clinical Research Fellow at dPHE. Susanne is an infectious disease and internal medicine specialist working on the DR-TB Genie App project advising on clinical development of a digital mobile application for physicians in South Africa to help with treatment decisions for multi drug resistant Tuberculosis. She also works on the GADSA: 'Gamified Antimicrobial Stewardship Decision Support App' project.

CAROLINE WOOD is an Honorary Researcher at dPHE. Her research interests focus on using theoretical frameworks from behavioural science to understand challenges and design solutions within the field of digital public health

LIUQING YANG is a visiting researcher comes from Southeast University, China. Her main research topic is to use health theoretical frameworks to understand the drivers of vaccine hesitancy. She is also interested in the modeling of infectious diseases and health economics evaluations.

KHONSA ZULFA is a dPHE research assistant working with GADSA project (Gamified Antimicrobial Decision Support App) to change antibiotics prescription behaviour among NHS surgeons . She graduated from her Master's degree in UCL IRDR on 2021.

SONJA MUELLER is a researcher with the MANTRA project who travelled to Nepal to evaluate the MANTRA serious game and analyzed knowledge gain among users. Alongside her research at dPHE, Sonja is now a PhD candidate at University of Otago studying resilience to impacts of natural hazards.

DR ELLA BROWNING is a post-doctoral research fellow based in the Centre for Biodiversity and Environment at UCL. She is an ecologist and zoologist, focussing on identifying the impacts of environmental change on biodiversity. Her research has addressed understanding biodiversity population trends and how environmental and anthropogenic factors affect them using spatial-temporal statistical modelling tools. Her work also focuses on improving biodiversity data collection using passive acoustics, 'Internet of Things' devices, and citizen science methods. Under the MEWAR project, her role is focussed on utilising spatio-temporal modelling methods to predict increases in mosquito abundance in response to socio-economic, climatic, and landscape factors.

FORMER TEAM MEMBERS

GEORGIANA BIRJOVANU is a software developer at dPHE. Before joining UCL, Georgiana interned as a Software Developer at Credit Suisse and Avanade, a Microsoft and Accenture tech consultancy company. She works on the technical development of dPHE mobile applications and software tools.

PHIL BAKER is a Research Assistant and Communications and Social Media Officer at dPHE. He is a recent IRDR MSc post-graduate working mainly on our current Covid-19 projects and is primarily interested in humanitarianism, public health and disaster risk reduction with a special attention on mental health in disasters.

BOGDAN-CHRISTIAN ANTON is a Software Developer (and co stand up comedian with Gigi Birjovanu) and former dPHE tech. He has interests in photography, holistic healthcare, everything to do with nature & flowers, great quality coffee, art and aesthetics in all its forms, self growth and self reflection, singing and quantum physics (both of which are at the early stages of WIP).

JUAN BELTRAN is a postdoctoral researcher. His main interest is the use of Big Data Analysis to understand fundamental questions in the ecology and evolution of tropical organisms and the use of mobile technology to empower people to fight and stop the spread of tropical diseases, in particular in the Americas.

SUE WISEMAN is an Honorary Senior Research Fellow and Consultant at dPHE. She is the Infection Prevention and Control Content Manager for the iNRIC website. At present her team is concentrating on COVID-19 advice both in healthcare and in the community, but have several exciting challenges ahead post-pandemic!

ALEXANDRO RADIN graduated in Dentistry, Specialising in Public Health before doing a Sandwich Master's in Governance and Sustainability from ISAE - Brazil Business School and UCL. He specialises in epidemiology of infectious and tropical diseases related to environmental conditions and public policies and is now on the board of the SARS Prevention and Control Committee - CoV2 - Covid-19 in Araucaria City Hall - State of Paraná / Brazil.and resources.

ANDY BOSCOR is a Software Engineer specialising in Full-stack development, specifically in cross-platform Ionic (Angular and React based) apps, Unity games, and web apps. Research areas include UX principles applied in Security and Encryption, Gamification methods, Design principles and secure authentication systems for PHE mobile apps.

ADRIAN RUBIO-SOLIS is currently with the department of energy, CIDESI Mexico, working in the field of autonomous underwater vehicles and Machine Learning. His current research topics include Deep Bayesian Learning, multilayer neural networks design, time series prediction, online Extreme learning machines and the design of evolutionary computing algorithms for the solution of problems in Engineering and Medicine.

RACHYA KAYASTHA is an Associate Scientist at Merck KGaA, USA. She was involved in MANTRA Project, a maternal health application working at UCL, Institute of Rick and Disaster Reduction. Her current focus is on Pre-Clinical Trials and researching Toxicity of Test Articles like COVID-19 drugs.

ZVEZDIN BESARABOV (FORMER INTERN) I worked on the dPHE website in the first half of 2021. Afterwards, I became part of the Entrepreneur First programme where I Co-Founded Burrowvest.com, a fractionalised real estate investing platform. At the start of 2022, I pivoted to the field of Blockchian, where I Co-Founded Outdid.io, the first fully private KYC process.

TIANYI WANG is an intern at dPHE going into his 3rd year of BSc Computer Science at UCL. He spends his time cycling and reading about Chinese literature and values his time coding as a software developer in dPHE as it's an opportunity to work with many interesting people while tackling problems in global health.

CHARLIE COWAN is an intern at dPHE. He is a computer science student at UCL, currently working on the My Lockdown Journal app. He grew up and lives in Oxford. He enjoys cooking and cycling in his spare time and is involved with the musical theatre and live music societies at UCL.

INTERNS

FATIMA MAHMOUD is an intern at dPHE. She is currently a medical student at UCL, and she has completed a Bachelor's degree in Global Health and Development. Her research interests focus around public health and humanitarian medicine. Working with dPHE, she is involved in their iNRIC project; an online database aimed at providing health professionals with up-to-date infection control evidence-based research and resources.

BEN ISMAILI is an intern at dPHE. He is a second year computer science student looking to do something that would benefit the current COVID-19 situation whilst allowing him to gain valuable experience in app development! "It has been a pleasure so far to have had this internship opportunity and I am learning something new every day."

MALWINA JABŁOŃSKA is an intern at dPHE and a 4th year Computer Games Art and Animation student at Glasgow Caledonian University. She is behind the 'fishy' graphic assets for dPHE's MyLockdownJournal app and is keen to get involved in community projects and see her art used for good causes!

MARYAM NAQVI is a Senior Structural Engineer at Clancy Consulting, based in London, having graduated from Cardiff University in Civil Engineering in 2015. Maryam volunteers with Engineers for Overseas Development and is currently working on a hospital refurbishment project in Uganda. She recently completed a part-time master's in Engineering for International Development at UCL, where she developed an interested in disaster risk reduction. Her master's thesis was titled 'Covid-19 vaccine hesitancy in ethnic minorities groups in the UK'.

UCL dPHE ANNUAL REPORT ACRONYMS

AMR	Antimicrobial Resistance
APHEA	Agency for Public Health Education Accreditation
ASPHER	Associate for Schools of Public Health in the European Region
DPH	International Digital Public Health Conference (link to: www.acm-digitalhealth.org)
DR-TB	Drug Resistant - Tuberculosis
EPSRC IAA	Engineering and Physical Sciences Research Council - Impact Acceleration Accounts
ESRC	Economic and Social Research Council
GADSA	Gamified Antimicrobial Stewardship Decision Support App
GCRF	Global Challenges Research Fund
ICAN	Infection Control Africa Network
iNRIC	International Resource for Infection Control
LMIC	Low-to-Middle-Income-Country
LSHTM	London School of Hygiene & Tropical Medicine
MANTRA	Increasing maternal and child health resilience before, during and after disasters using mobile technology in Nepal
MEWAR	Mosquito population modelling for early warning system and rapid health authority response
MSW	Municipal Solid Waste
NHS	National Health Service
ODA	Official Development Assistance
PASS	Preserving Antibiotics through Safe Stewardship
SYMBIOTIC	Social-Industrial sYmbiosis of Malaysia's BIO-plasTIC wastes
UCL	University College London
UCL CBER	Centre for Biodiversity and Environment Research
UCL CEGE	Department of Civil, Environmental and Geomatic Engineering
UCL dPHE	UCL Centre for Digital Public Health in Emergencies (dPHE)
UCL GEO	Global Engagement Office
UCLH	University College London Hospitals NHS Foundation Trust
UCL IRDR	Institute for Risk and Disaster Reduction
UFPE	Universidade Federal de Pernambuco Brazil