UCL

UCL dPHE
Report
2018-2022

dphe.ucl.ac.uk

Centre
Mission

Projects and where we work

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

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

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

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

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

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

UNITED KINGDOMAFRICAMIDDLE EAST, WEST BANKBRAZILBRAZIL AND TURKEY

DR-TB Genie: Mobile decision support for decentralised management of drug-resistant tuberculosis Understanding information needs of infection control

AUSTRALIA AND EUROPESOUTH AFRICAPORTUGAL

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

MALAYSIA

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

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.
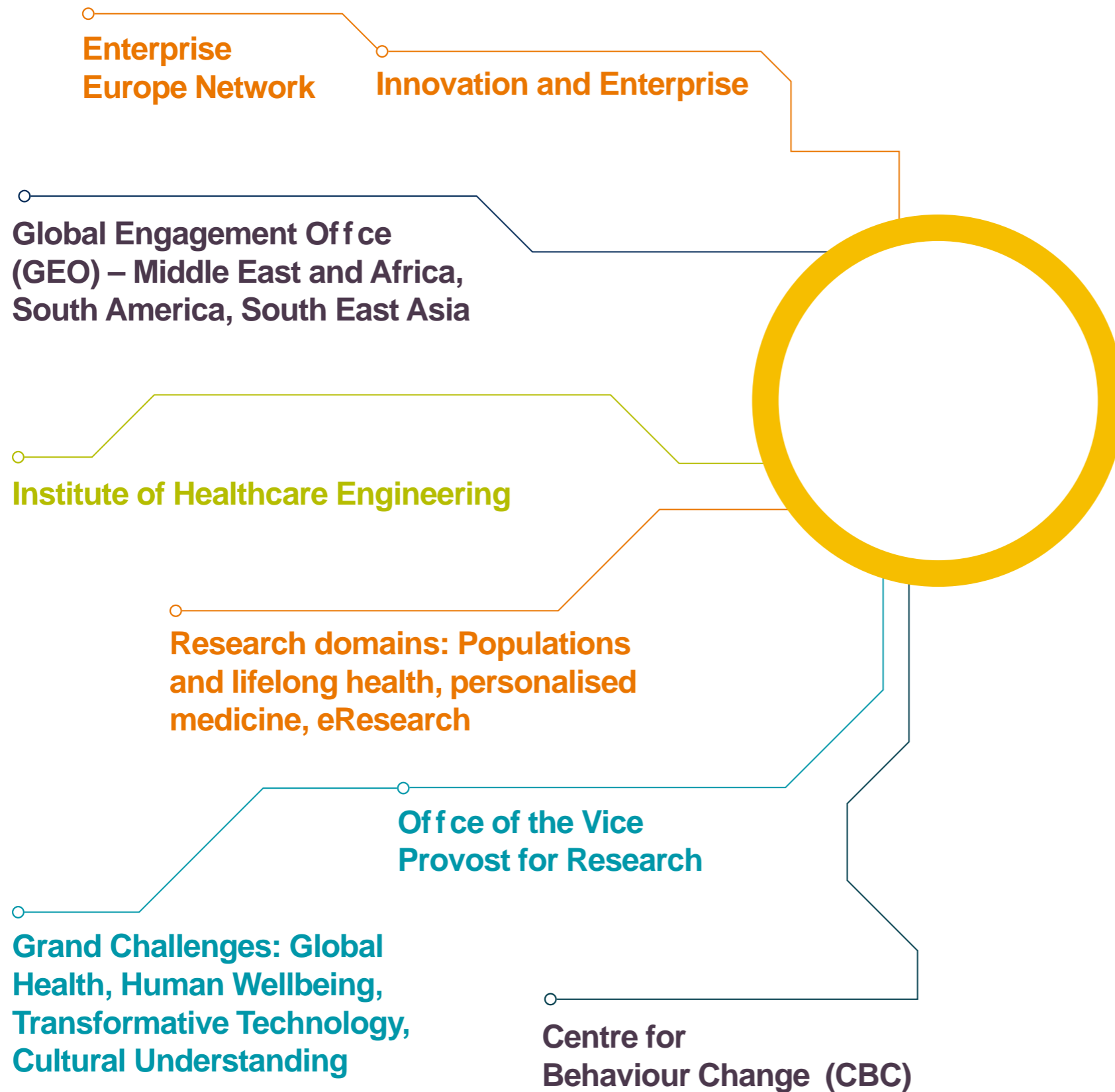
ZIKA: A gamiﬁed m-training app for health professionals on protocols and participatory surveillance associated with Zika virus
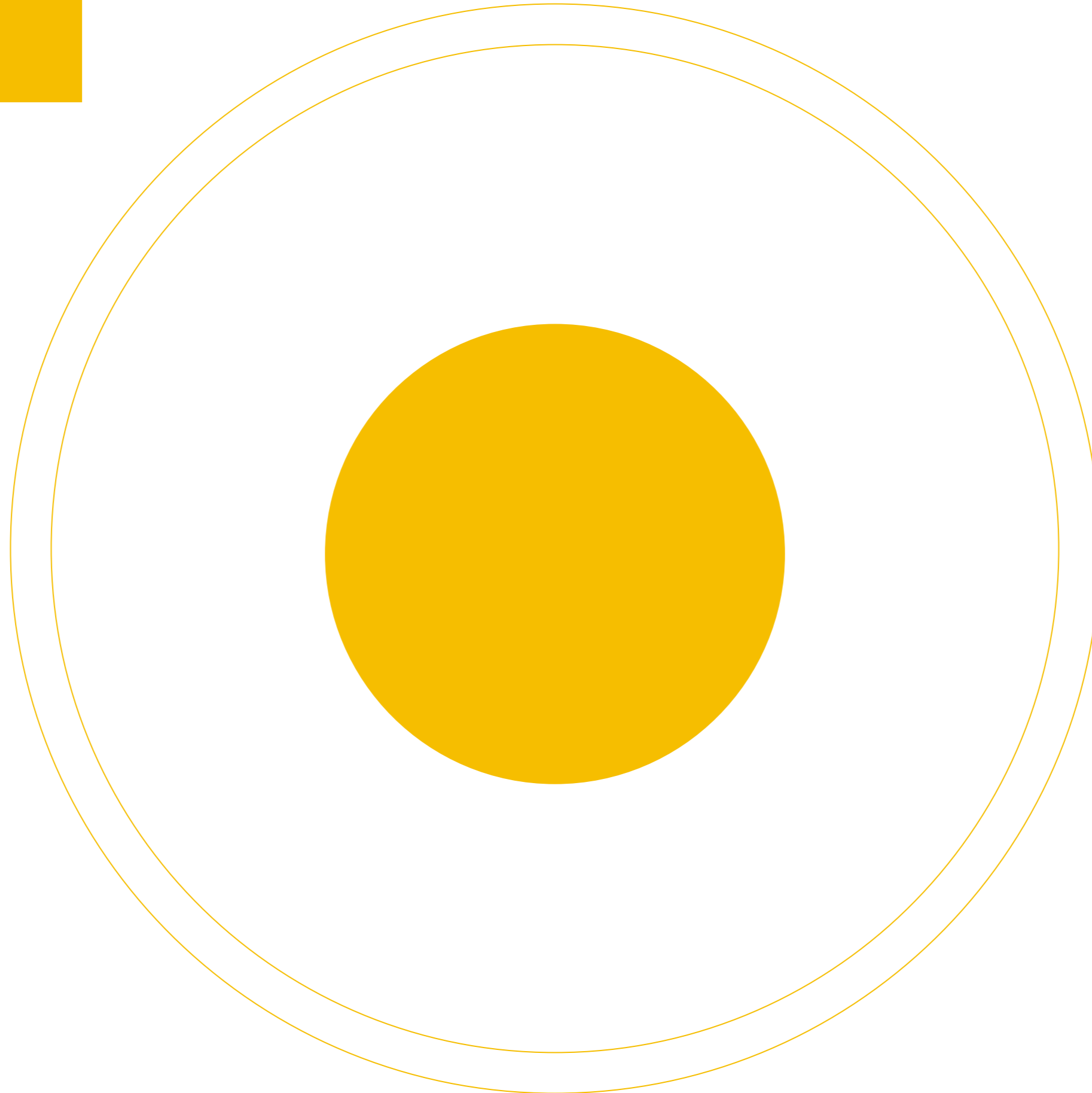
MEWAR: Mosquitoes populations modelling for early warning system and rapid response by public health authorities correlating climate, weather and spatial-temporal mobile surveillance data

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

UCL Collaborations Partners

**Enterprise
Europe Network**

Innovation and Enterprise

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

Institute of Healthcare Engineering

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

**Office of the Vice
Provost for Research**

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

**Centre for
Behaviour Change (CBC)**
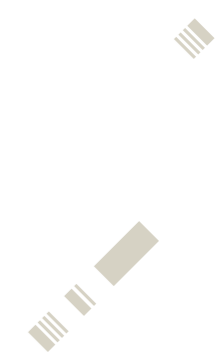
In Numbers

11

Staff members

2,776   **507**

151   **1,491**

Research

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,

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2020 - ONGOING

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

2021 - ONGOING

MOISS: MOSQUITO OVITRAPS IOT SENSING SYSTEM

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,

Theme 2: Antibiotic resistance and prescribing

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

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

MY ACTIVITY JOURNAL APP

In Spring 2020, governments around the world-imposed

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

Theme 4: COVID-19

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.
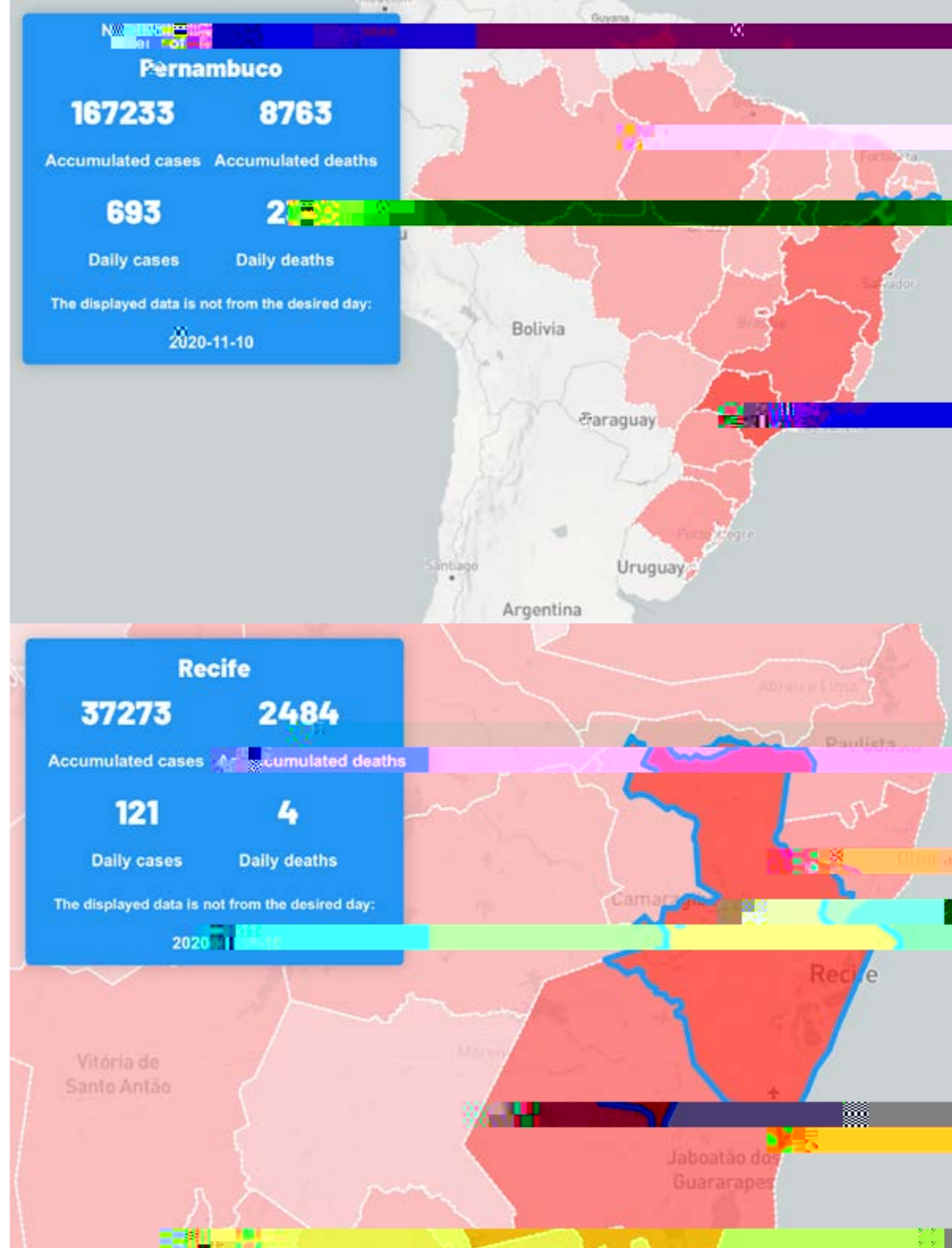
2020 - ONGOING

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
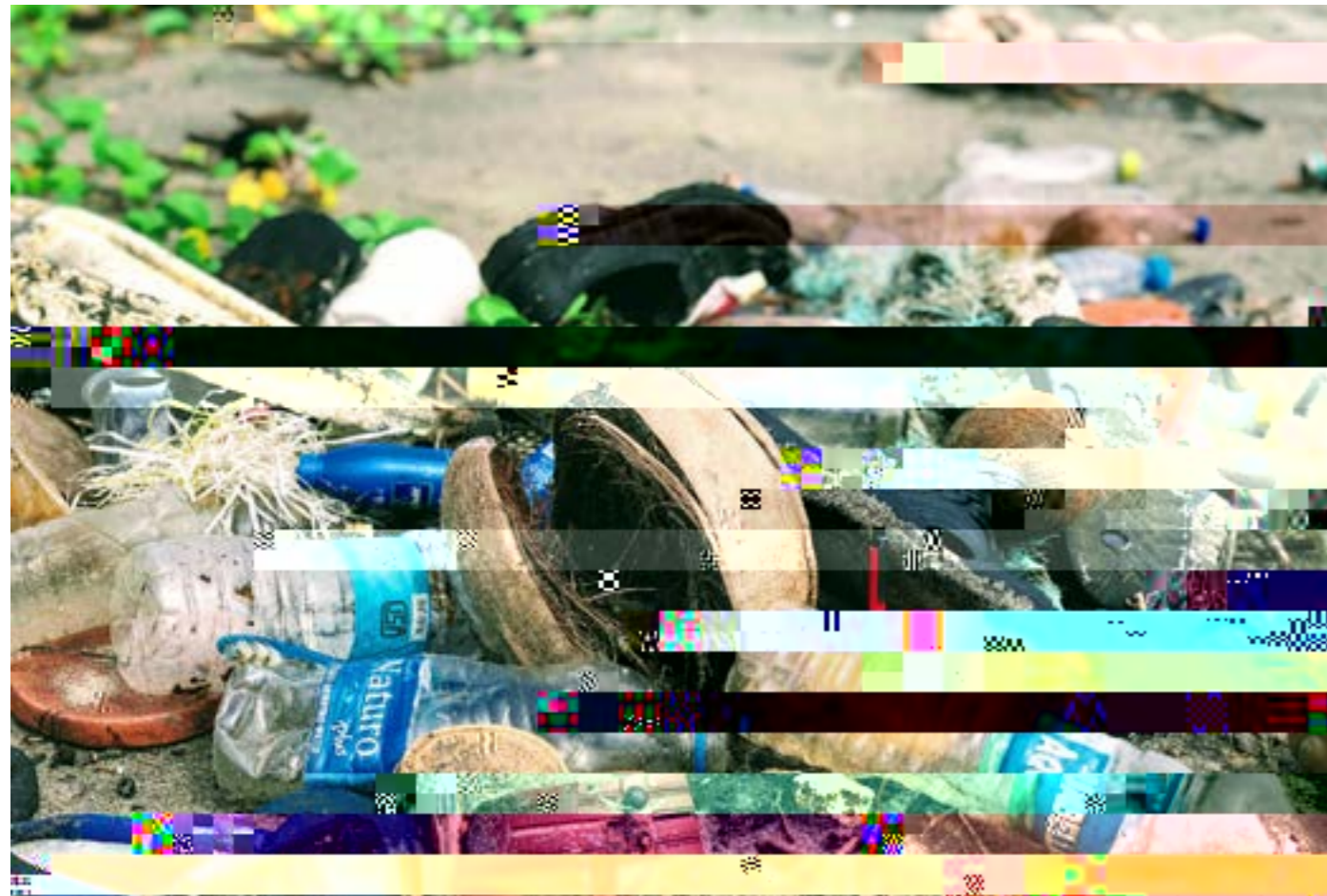
Theme 4: COVID-19

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.

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

CHARACTERIZING SPILLOVER RISK AT THE HUMAN-ANIMAL INTERFACE IN

Theme 5: Outbreak prediction and surveillance

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 infuenza 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

Theme 6: Vaccine hesitancy

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

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.
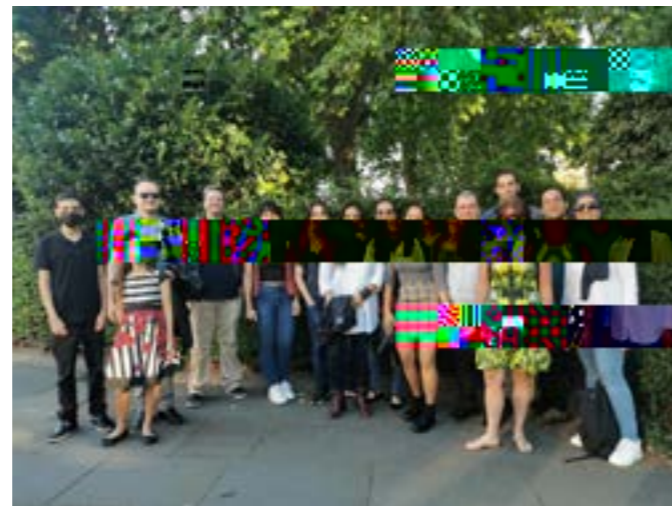
Events and Public Engagement

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

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

DPH ANNUAL CONFERENCE

MASTER CLASSES

SKILLS BUILDING EVENTS

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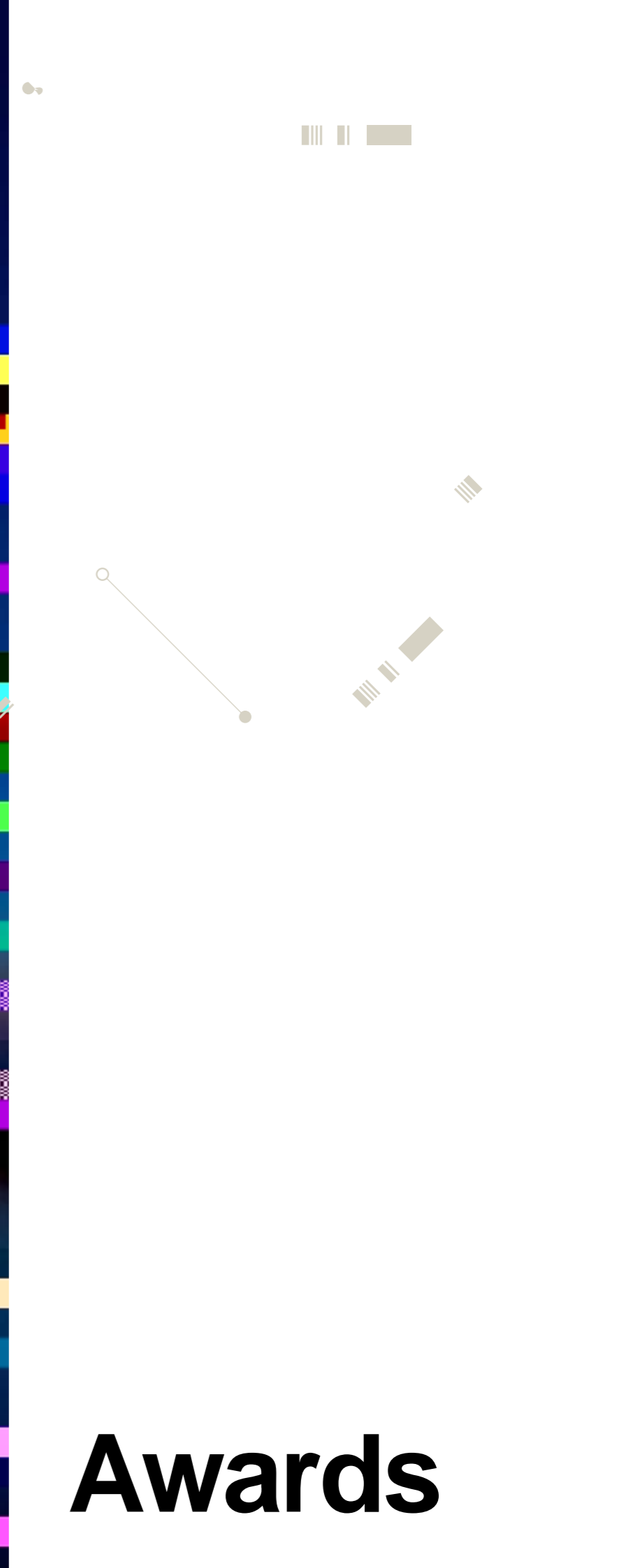
SEPT 2016 Pandemics and Infection Control - Meeting Tomorrow's Threats and Challenges Today, A Public Policy Exchange Symposium, London, UK.

❝ **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

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)
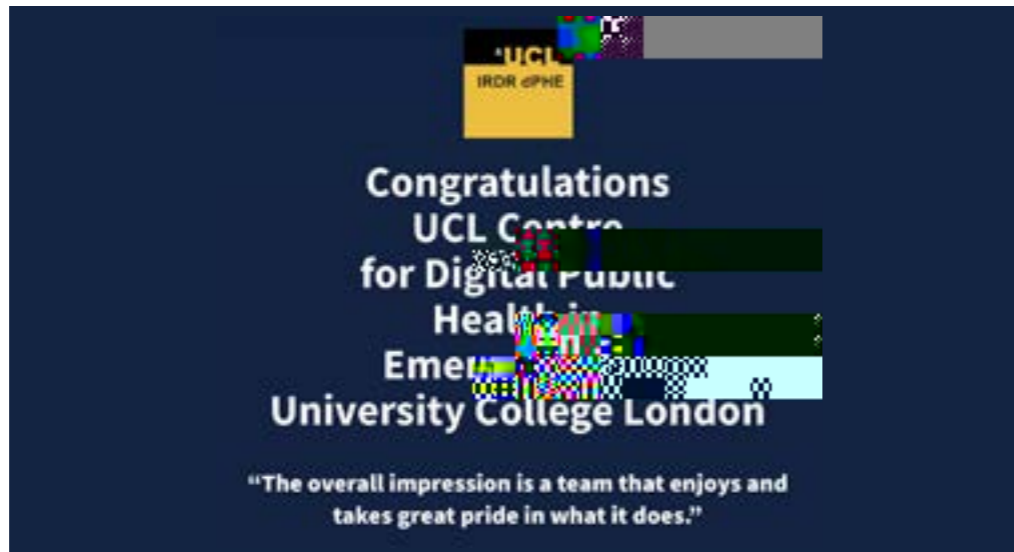- Diversity Project of the Year – MANTRA Project (finalist 2017)

2019
- Runner-up Best Partnership: Dr. Caroline Wood on behalf of the

COMPUTING RISING STAR AWARDS

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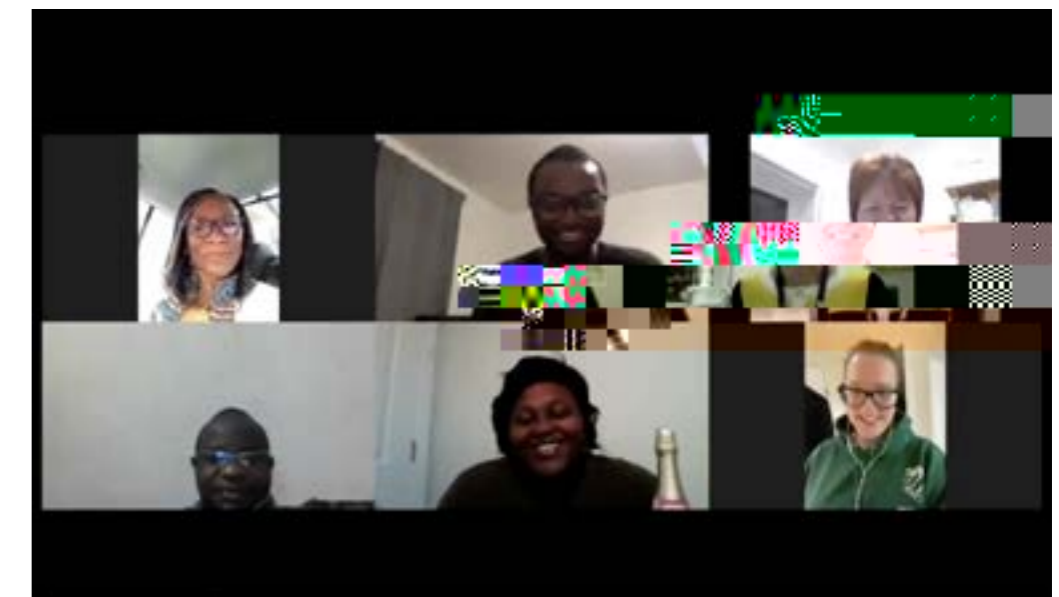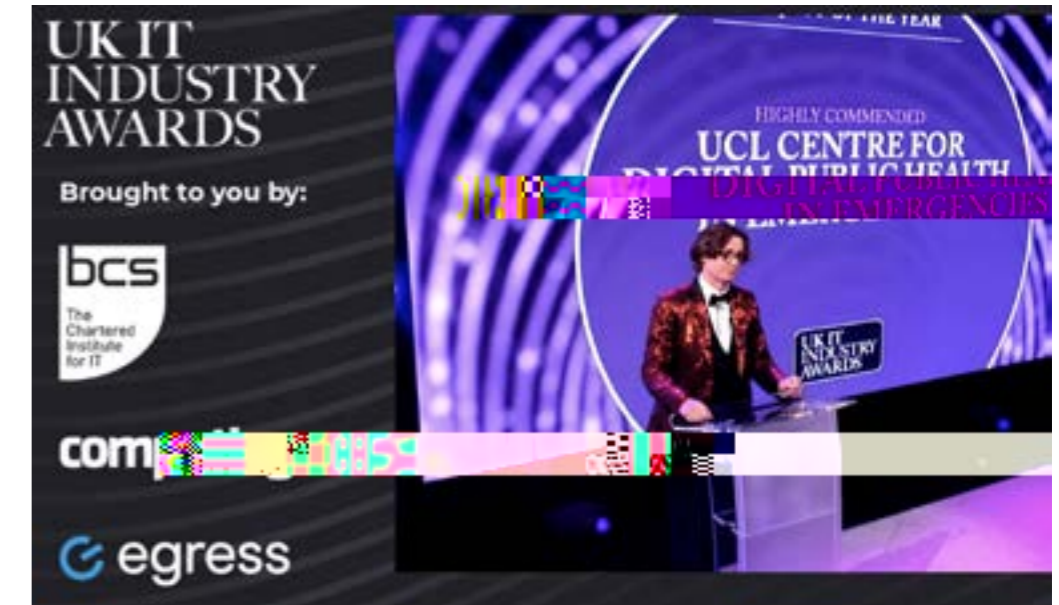

DPH 2018 INNOVATION PRIZES

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

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

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.

- Rubio-Solis, A; Musah, A; Dos Santos, WP; Massoni, T; Birjovanu, G; Kostkova, P (2019) ZIKA Virus: Prediction of Aedes Mosquito Larvae Occurrence in Recife (Brazil) using Online Extreme Learning Machine and Neural Networks.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. 101-110). Association for Computing Machinery (ACM): New York, NY, USA. (2019)

- Pescaroli, G; Velazquez, O; Alcantara-Ayala, I; Galasso, C; Kostkova, P; Alexander, D (2020) A Likert Scale-Based Model for Benchmarking Operational Capacity, Organizational Resilience, and Disaster Risk Reduction. International Journal of Disaster Risk Science (2020)

- Godinho, M.A., Borda, A., Kostkova, P., Molnar, A. and Liaw, S.T., 2020. 'Serious Games' for unboxing Global Digital Health policymaking.

- Elimian, K.O., Mezue, S., Musah, A., Oyebanji, O., Fall, I.S., Yennan, S., Yao, M., Abok, P.O., Williams, N., Omar, L.H. and Balde, T., 2020. What are the drivers of recurrent cholera transmission in Nigeria? Evidence from a scoping review. BMC public health, 20, pp.1-13.

- de Lima, C.L., da Silva, C.C., da Silva, A.C.G., Silva, E.L., Marques, G.S., de Araujo, L.J.B., Junior, L.A.A., de Souza, S.B.J., de Santana, M.A., Gomes, J.C. de Freitas Barbosa, V.A., Musah, A., Kostkova, P., Pinheiro Dos Santos, W. and Silva-Filho, A.G. 2020. COVID-SGIS: A smart tool for dynamic monitoring and temporal forecasting of Covid-19. medRxiv.

- Musah, A., Umar, F., Yakubu, K.N., Ahmad, M., Babagana, A., Ahmed, A., Thieme, T.A. and Cheshire, J.A., 2020. Assessing the impacts of various street-level characteristics on the burden of urban burglary in Kaduna, Nigeria. Applied Geography, 114, p.102126.

- Mueller, S., Soriano, D., Boscor, A., Saville, N.M., Arjyal, A., Baral, S., Fordham, M., Hearn, G.J., Le Masson, V., Kayastha, R. & Kostkova, P. (2020) MANTRA: Development and localization of a mobile educational health game targeting low literacy players in low and middle income countries. BMC Public Health. In press.

- Naqvi, M., Li, L., Woodrow, M., Yadav, P., & Kostkova, P. (2022). COVID-19 vaccine hesitancy and the role of social media in ethnic minorities groups in the UK. Frontiers in Public Health.

- Li, L., Musah, A., Thomas, M. G., & Kostkova, P. (2022). An ecological study exploring the geospatial associations between socioeconomic deprivation and fire-related dwelling casualties in the England (2010–2019). Applied Geography, 144, 102718.

- de Lima, C. L., da Silva, C. C., da Silva, A. C. G., da Silva, A. A., de Almeida, F. R., de Gusmão, C. M. G., ... & dos Santos, W. P. (2022). Prediction of Aedes aegypti breeding distribution through spatiotemporal analysis and machine learning: A case study in Recife, Pernambuco.

- Borda, A., Molnar, A., Neesham, C., & Kostkova, P. (2022). Ethical Issues in AI-Enabled Disease Surveillance: Perspectives from Global Health. Applied Sciences, 12(8), 3890.

- Wood, C. E., Luedtke, S., Musah, A., Bammeke, Sde Lima2ThiemkOjeiences, 12(8), 3890.•. 00047n0 -1.445 Ndfi, L.,JAC-Augimicrob2005Rtiesrs ictu4orike, dlac02AMusah, A., Bamme Sde Lima2ThiemkOje00355.6 00J., L0355 0024J., L1000F0003654.8 (80003J., LMore G.J.07r,.07586 79.151[de L.)TjM2.074 Td(eospa

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

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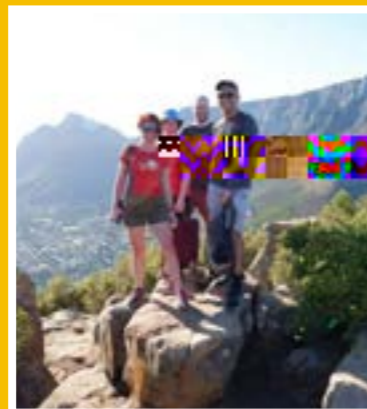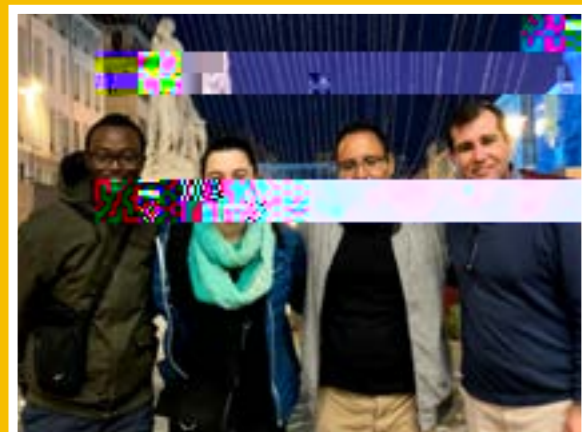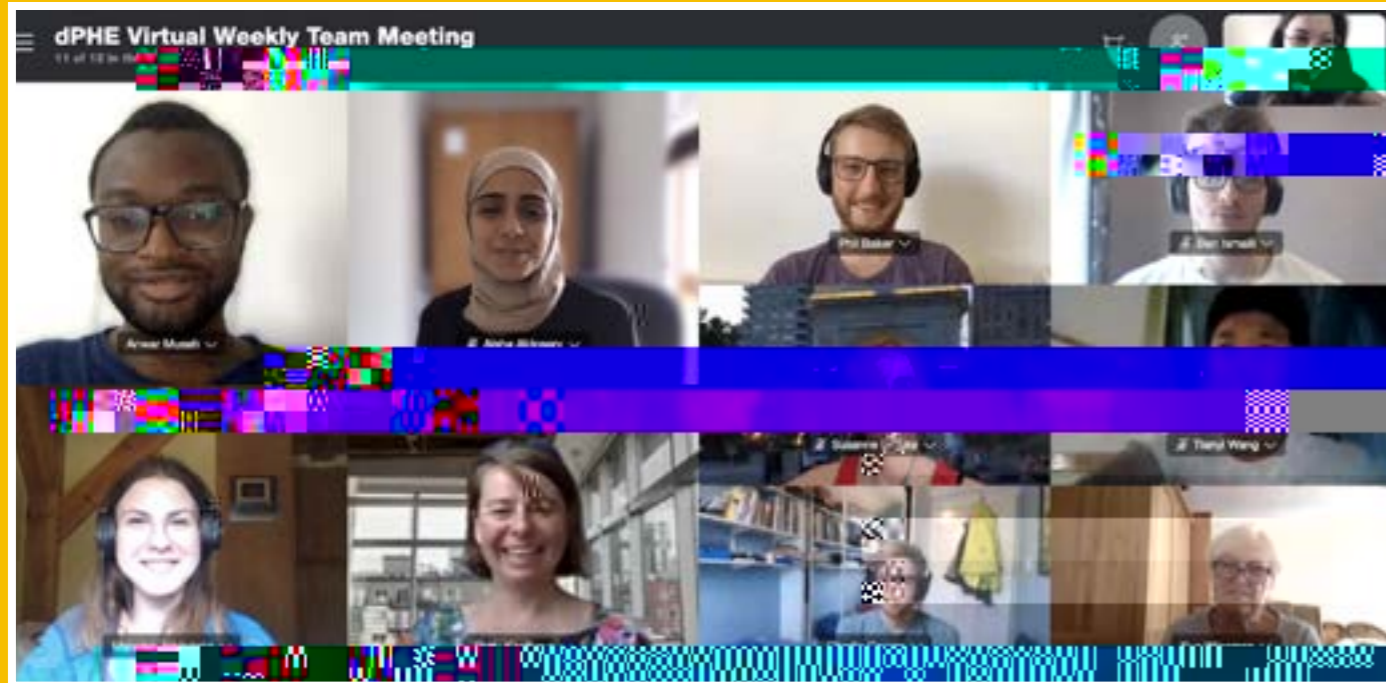

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UCL dPHE ANNUAL REPORT ACRONYMS

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