New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG): Members biographies

Chair of NERVTAG

Professor Nicola Lewis (Francis Crick Institute and Royal Veterinary College)

Nicola Lewis (BSc BVetMed PhD PGCert FHEA MRCVS) is Director of the Worldwide Influenza Centre and the WHO Collaborating Centre for Research and Response at the Francis Crick Institute in London. She is also Professor in One Health Evolutionary Biology at the Royal Veterinary College, from where she also graduated as a veterinary surgeon. After a period in general practice Nicola returned to the University of Cambridge to undertake a PhD in infectious diseases – focussing on using state-of-the-art computational methods to quantify the evolution of influenza A viruses in animals.

Her research now focuses on investigating the ecology and evolution of influenza A viruses in multiple animal hosts and the risks that these viruses might pose to the human population, with a global context. This internationally collaborative high-impact research spans huge diversity from implementing surveillance in wild birds, analysing emerging highly pathogenic avian influenza viruses, to using state-of-the-art computational techniques to analyse influenza virus antigenic and genetic evolution, to assess pandemic risk, and to inform international stakeholders on vaccine strains and antiviral susceptibility. Her recent research publications encompass avian, swine, marine mammal and human influenza A viruses as well as Newcastle Disease.

She is a partner in the UK Covinet consortium and serves on the WHO TAG-CO-VAC Subgroup on Strain Selection for SARS-CoV2 vaccine. She is also a co-investigator on PROVAC: a project on selecting vaccine strains that provide the best possible protection against SARS-CoV2 for the UK population.

In her roles, she provides consultancy to a range of stakeholders but specifically including the European Commission, WOAH, FAO, EFSA, ECDC, WHO and UKHSA. Alongside her WHOCC analyses of human seasonal influenza virus evolution, Nicola also contributes data and analyses biennially to the WHO Vaccine Composition Meeting submission for animal influenza viruses of zoonotic potential.

NERVTAG members

Dr Cariad Evans (Sheffield Teaching Hospitals NHS Foundation Trust)

Cariad Evans is a clinical virologist (dual accredited in Infectious Diseases and Virology) working at Sheffield Teaching Hospital NHS Foundation Trust, covering the clinical virology service for South Yorkshire and North Derbyshire.

She has a MD from Sheffield University and continues to be active in clinical virology research.

She is local high consequence infectious disease (HCID) Virology Lead and works within the personal protective equipment (PPE) advisory group of the UK HCID Network, alongside the Health and Safety Executive, NHSE and UK Health Security Agency (UKHSA). Cariad has a specific interest in safe systems of working and personal protective equipment using HCID Simulation training and Violet ('Visualising Infection with Optimised Light for Education and Training') a healthcare training mannequin, adapted to show symptoms consistent with a suspected HCID and has established a national training program using this technology. Other research interests include respiratory viral diagnostics, burden of disease and respiratory viral sequencing. Cariad also has extensive experience in establishing patient pathways and regional implementation using rapid point of care (POCT) viral diagnostics, focusing on influenza and SARS-CoV-2.

Cariad has a valuable understanding of the running of a regional NHS virology laboratory service and provides specialist clinical advice on pandemic response. Cariad has also contributed to the Independent High Risk AGP Panel and was a Member of the Respiratory Evidence Panel, alongside her NERVTAG role since the emergence of the COVID Pandemic. Other roles include faculty member of National HCID Simulation Training Program and regional virology HST training lead.

Outside of work Cariad is Chair of a charity, Sheffield Health Action Resource for Ethiopia (SHARE), which aims to improve the healthcare systems in Tigray northern Ethiopia.

Professor Katie Jeffery (Oxford University Hospital NHS Foundation Trust)

Katie Jeffery is a Consultant in Clinical Infection, the Infection Control Doctor (ICD) and the Director of Infection Prevention and Control (DIPC) at Oxford University Hospitals. She has more than 20 years' experience as an NHS Consultant in diagnostic microbiology. As DIPC and ICD she was responsible for managing the SARS-CoV-2 infection prevention and control (IPC) response in one of the largest teaching hospital trusts in the country. She led on research projects that directly influenced the national pandemic response. She has also managed large outbreaks of other emerging pathogens including *Candida auris*.

Katie is the lead for setting up the newly designated airborne HCID centre in Oxford University Hospitals as part of the UK HCID network – this service will support both adult and paediatric patients.

Although a fulltime NHS clinician she is active in research and completed a PhD at Imperial College in 2000. Her current research has an emphasis on translational diagnostics, and the use of sequence-

based data to inform IPC investigation and decision making. She is a member of the Steering Group for the RECOVERY trial and is active in projects involving immunity to SARS-CoV-2 including the national PITCH study of immunity to SARS-CoV-2 in healthcare workers.

Katie is a recent past President of The British Infection Association and is a member of the Infectious Diseases Clinical Reference Group.

Professor James Rubin (Kings' College, London)

James is an academic psychologist at King's College London where he is a Professor of Psychology & Emerging Health Risks. His main research interest is in understanding how people perceive health risks and what implications these perceptions have for how people behave and for their physical and mental well-being.

Professor Julian Hiscox (University of Liverpool)

Julian A. Hiscox is Chair in Infection and Global Health, Acting Executive Dean in the Institute of Infection, Veterinary and Ecological Sciences, University of Liverpool. He is a deputy Associate Pro-Vice Chancellor for Research in the Faculty of Health and Life Sciences. He is an adjunct professor at the Infectious Diseases Horizontal Technology Centre (ID HTC), A*STAR, Singapore. He did a BSc in Genetics at University College London in 1991 and then a PhD on porcine coronavirus replication at the Institute for Animal Health (University of Reading, 1994).

After post-doctoral training in the USA and back in the UK on avian coronaviruses, Julian became a Lecturer/PI at the University of Reading, starting a research group on the avian coronavirus, infectious bronchitis virus (IBV). At Reading he focused on the cell biology of the virus, the viral nucleoprotein and developing field-based ELISAs.

Julian moved to the University of Leeds in 2002 and carried on with IBV but also included work on severe acute respiratory syndrome coronavirus (SARS-CoV) and human respiratory syncytial virus. In 2012 he moved to the University of Liverpool, where he included Ebola virus in his research portfolio and, in the past 2 years, he and his laboratory have been visiting Saudi Arabia to work with collaborators on Middle East respiratory syndrome coronavirus (MERS-CoV). He is an advisor to the Ministry of Environment, Water and Agriculture in Saudi Arabia. His laboratory works with the UK Defence Science and Technology Laboratory on biological and chemical threat agents.

Julian currently leads a $8.9 million research program funded by the US FDA on severe coronavirus infections including MERS-CoV and SARS-CoV-2. His research is defined by using high resolution approaches to characterise clinical samples and inform functional analysis.

Professor Susanna Dunachie (University of Oxford)

Susanna is an immunologist at Oxford University, where she is Professor of Infectious Diseases and NIHR Global Research Professor. She is Director of the NDM Centre for Global Health Research.

Susanna also works as a Consultant in Infectious Diseases and Microbiology at Oxford University Hospitals NHS Foundation Trust and is Adjunct Professor at Mahidol University in Bangkok, Thailand. Susanna leads immunology lab research to improve therapies and vaccines for emerging pathogens including SARS-CoV-2, RSV, *Burkholderia pseudomallei*, and other Gram-negative bacteria with antimicrobial resistance. She is Chief Investigator for the world's first clinical trial of a vaccine for melioidosis, leads the national PITCH study of immunity to SARS-CoV-2 in healthcare workers, and leads the T cell work package of SEACOVARIANTs (Southeast Asia initiative to combat SARS-CoV-2 variants).

Professor Graham Cooke (Imperial College London)

Graham Cooke is Professor of Infectious Diseases and Vice-Dean for Research at Imperial College London. He works as an NHS consultant at Imperial College and Chelsea and Westminster NHS Foundation Trusts, where he leads the Infection and AMR theme of the NIHR Biomedical Research Centre.

He leads a multidisciplinary research team spanning clinical trials, diagnostics, molecular virology, host genetics, health economics and treatment access. During the COVID-19 pandemic he led the development of rapid diagnostics and was a principal investigator on the REACT study. He is currently an investigator on the REMAPCAP flu trial platform.

Graham is a non-executive director and deputy chair of the MHRA and a member of the WHO committee on the selection and use of essential medicines.

Professor Matt Keeling (University of Warwick)

Matt Keeling (University of Warwick) leads the Zeeman Institute for Systems Biology and Infectious Disease Epidemiological Research (SBIDER). He uses a wealth of mathematical and statistical techniques to better understand and predict the dynamics of infectious disease. He has worked on a wide range of infectious diseases, from bubonic plague to measles to vector-borne infections. He is passionate about improving the science-policy interface having provided scientific support on a number of high impact outbreaks, from foot-and-mouth disease in 2001 to COVID-19 in 2020 and MPox in 2022.

Professor Christophe Fraser (University of Oxford)

Christophe Fraser is Moh Family Foundation Professor of Infectious Disease Epidemiology in the Pandemic Sciences Institute at the University of Oxford. He trained as a physicist, and has been an infectious disease epidemiologist since 1998. Christophe uses mathematical, computational and statistical approaches to study epidemic dynamics and improve public health interventions. A general interest is precision public health, providing more differentiated knowledge on transmission and using this to target prevention where it has more impact and causes less disruption.

In recent years, his group has focus on supporting interventions against HIV/AIDS using virus genomics and mathematical modelling. Christophe has been the principal investigator of two international consortia focused on HIV genomics — one European and one African. These consortia provided new insights into how to control HIV epidemics, into HIV virulence, and also resulted in novel genomic approaches and a focus on capacity building and supporting African leadership.

During previous epidemic outbreaks, Christophe led several rapid disease analysis responses as a member of the Imperial College/WHO team responding to SARS-1, Ebola, MERS and pandemic influenza.

At the start of COVID-19 pandemic, Christophe proposed that, due to pre-symptomatic transmission, contact tracing apps could play an important role in reducing transmission. He provided epidemiological analytics that informed the design of the system by Google and Apple and its deployment in 49 countries. As members of the NHS team, his team contributed to the developed, optimisation and evaluation of the NHS Covid-19 app. In addition, his group also contributed virus sequencing to the COG-UK consortium and the Oxford vaccine trials, and the mathematical modelling underpinning the trust-level NHS Early Warning System.

He is currently focussed on using mathematical modelling to support the improvement of early responses to emerging epidemics. New projects include PRESTO — Preparedness by Simulations for Trial Optimisation — funded by CEPI to focus on speeding the evaluation of vaccines in the 100 days mission, and a new interdisciplinary Oxford Martin School for Digital Pandemic Preparedness, both of which will run till 2027.

Professor Emma Thomson (University of Glasgow)

Emma Thomson is Clinical Professor of Infectious Diseases at the MRC-University of Glasgow Centre for Virus Research and Professor of Emerging Viral Infections at the London School of Hygiene and Tropical Medicine in the United Kingdom. Her research group use next-generation sequencing (NGS) to detect new and emerging viruses in the UK and in East Africa (Uganda) and engage in improving local diagnostic capacity to allow for more rapid control interventions. Her team work on linking the genotype of viruses with the phenotype in the laboratory and in clinical settings. She worked with other centres across the UK on tracking the genotype and phenotype of SARS-CoV-2 as part of the COG-UK consortium (sequencing 2 million SARS-CoV-2 genomes across the UK). Her team led a study outlining a change in entry mechanism, tropism and immune evasion of the Omicron variant (away from TMPRSS2 and towards cathepsin-linked entry), published in *Nature Microbiology*. She has also led studies that have contributed to genomic epidemiology by revealing multiple introductions of SARS-CoV-2 from mainland Europe into Scotland (*Nature Microbiology*). Her team recently identified the adeno-associated virus 2 (AAV2) to be associated with hepatitis in children in the UK, published in *Nature* this year. She has worked as principal investigator on several vaccine studies and works in partnership with the Uganda Virus Research Institute on enhancing diagnostic capacity for emerging viruses.

Co-opted NERVTAG members

Dr Lisa Ritchie (NHS England)

Lisa is the National Deputy Director for Infection Prevention and Control (DIPC) at NHS England, responsible for ensuring that NHS England's strategic and business objectives are met in alignment with national policy.

With a career in Infection Prevention and Control (IPC) spanning over 25 years, Lisa has held both local and national leadership roles across acute care and public health. She served as Lead Nurse Consultant for the National IPC Policy, Guidance, and Outbreak Health Protection Programme at Health Protection Scotland (HPS) for over a decade. In the final two years of this role, she was seconded to England's NHS Improvement Gram-Negative Bloodstream Infection (GNBSI) team as a Clinical Fellow.

Lisa has played a key role in developing IPC guidelines both nationally and internationally and has contributed to several significant initiatives in the field. Notably, she led the development of Scotland's National Infection Prevention and Control Manual, which won the IPC Category at the Antibiotic Guardian Awards 2019.

Dr Chloe Sellwood (NHS)

Dr Chloe Sellwood is the Assistant Director, Emergency Preparedness, Resilience and Response (EPRR) For NHS England (London). Alongside this she works nationally on pandemic preparedness for NHS England. Chloe's experience ranges from local to international levels and encompasses scientific, strategic and operational aspects. She spent over 7 years at the Health Protection Agency, including 3 years in the Pandemic Influenza Office. In 2008 Chloe joined NHS London as the Pandemic Influenza Resilience Manager. In 2010 she took on responsibility for Health Resilience for the NHS across London for the 2012 Olympic and Paralympic Games, and in autumn 2014 she assumed the strategic leadership for NHS Ebola preparedness in London. Since February 2017 Chloe has also been Assistant Director of the NHS England (London) EPRR team and has been intrinsically involved in the response to major incidents in London and nationally, including those over summer 2017 and COVID-19. She played a pan-London leadership role for the NHS during the COVID-19 pandemic. Chloe is the co-editor of, and a contributing author to, 2 textbooks on pandemic influenza and 1 on health EPRR.

Professor Ian Brown (The Pirbright Institute)

Professor Ian Brown is group leader for Avian Virology at the Pirbright Institute working on a range of avian diseases but with a strong focus on avian influenza. He has extensive experience in Veterinary Virology research, surveillance, diagnostics and control. Formerly prior to retiring from the Animal and Plant Health Agency (APHA) he worked as Head of Virology for over 10 years before taking up the position as Director of Science (Operations and Research), leading the APHA science programme. As former Head of Virology at the APHA – Weybridge, Ian led a large team carrying out diagnosis, surveillance and active programmes of research for avian and mammalian viral diseases, wildlife zoonoses and vector-borne diseases.

He was until March 2024 Director of WOAH/FAO International Reference Laboratories for Avian Influenza, Newcastle Disease and Swine Influenza. In these roles Ian was a UK national expert on Avian & Swine Influenza, and Newcastle Disease and a designated WOAH expert for the three diseases having led the science response for the HPAI outbreak 2020-2023.

He provides a broad range of disease consultancy at both international and national level to a wide range of stakeholders on all the aforementioned diseases, specialising in science evidence and laboratory application as directly relevant to disease control. Ian is a founder member of the OFFLU (WOAH/FAO open network on animal influenza) Laboratory Network and has taken the lead on a number of key international issues related to the work of this group both on the avian and swine subgroups. He is currently chairperson of OFFLU. Ian has undertaken country specific missions to advise on the control of HPAI. His specific research interests include epidemiology, pathogenicity, transmission and infection dynamics in relation to the control of influenza in animal hosts including zoonotic threat. Ian gained his PhD on 'Epizootiology of influenza in pigs in Great Britain with emphasis on characterisation of viruses isolated since 1986'. He has published over 260 peer review papers and 17 book chapters principally on animal influenza.

Ian holds an Honorary Professorship in Pathobiology and Population Sciences with Royal Veterinary College, London.

He was awarded an OBE in the 2020 New Year's Honours list for services to animal health and welfare.

Professor Wendy Barclay (Imperial College London)

Wendy Barclay is currently Regius Professor of Infectious Disease and Head of Department of Infectious Disease at Imperial College London. She also chairs the UKRI Medical Research Council infection and Immunity Board.

She trained at Cambridge, Reading University and Mount Sinai Medical Centre in New York before establishing her own laboratory. She has been actively researching viruses that cause respiratory infections including those with pandemic potential for more than 30 years, uncovering the mechanism by which viruses can cross from animal sources into humans to cause new pandemics. She contributed advice during the COVID pandemic and was awarded a CBE in 2022 for her services to virology.

Professor Jim McMenamin (Public Health Scotland)

I am a consultant in public health and for the past 20 years have worked as a consultant epidemiologist investigating Scottish, UK and international incidents and outbreaks of infectious disease. My main areas of expertise have been in new surveillance development and translational public health research to demonstrate the effectiveness of our interventions to influence future government policy for Scotland and the UK. My strategic leadership of Infection Services within Public Health Scotland has allowed assessment of COVID-19 & seasonal influenza vaccine effectiveness through collaboration with Scottish, UK & EU partners in the IMOVE & VEBIS projects. Such data linkage allowed a consortium

of Scottish University & NHS Scotland colleagues (the EAVE-II project) to assess the impact of the COVID-19 and seasonal influenza vaccination programme. New studies evaluating the effectiveness of the Respiratory Syncytial Virus Vaccine deployed for the first time in the Scottish population are currently in place.

Professor Andrew Hayward (UKHSA and University College London)

Andrew Hayward is a Professor of Infectious Disease Epidemiology with a particular interest in community transmission of acute respiratory infections including Covid-19 and Influenza.
He has led large scale community studies of these infections including the Flu Watch Study and the Virus watch study.

Since Feb 2023 he has also been UKHSA National lead for Inclusion Health (0.8 WTE).