

Members of, and Advisers to, the International Health Regulations (2005) Emergency Committee on Zika virus and observed increase in neurological disorders and neonatal malformations

Chair of the Emergency Committee on Zika virus and observed increase in neurological disorders and neonatal malformations

Professor David L. Heymann

Professor of Infectious Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, United Kingdom of Great Britain and Northern Ireland



Professor David Heymann is currently professor of Infectious Disease Epidemiology, London School of Hygiene and Tropical Medicine; Head and Senior Fellow, Centre on Global Health Security at Chatham House, London; and chairman of Public Health England, United Kingdom of Great Britain and Northern Ireland.

Previously, he was the World Health Organization's (WHO) Assistant Director-General for Health Security and Environment, and Representative of the Director-General for polio eradication. From 1998 to 2003, he was Executive Director of the WHO Communicable Diseases Cluster, during which he headed the global response to SARS, and prior to that was Director for the WHO programme on Emerging and other Communicable Diseases.

Earlier experiences at WHO include chief of research activities in the WHO global programme on AIDS. Before joining WHO he worked for 13 years as a medical epidemiologist in sub-Saharan Africa, on assignment from the United States Centers for Disease Control and Prevention (CDC), where he participated in the first and second outbreaks of Ebola hemorrhagic fever, and supported ministries of health in research aimed at better control of malaria, measles, tuberculosis and other infectious diseases.

Prior to joining CDC he worked in India for two years as a medical epidemiologist in the WHO smallpox eradication programme.

He is an elected fellow of the Institute of Medicine of the National Academies, United States of America, and the Academy of Medical Sciences, United Kingdom of Great Britain and Northern Ireland, and has been awarded several public health awards that have provided funding for the establishment of an on-going mentorship programme at the International Association of Public Health Institutes.

Dr Fernando Althabe

Director, Department of Maternal and Child Health Research, Institute for Clinical Effectiveness and Health Policy, Buenos Aires, Argentina



Dr Fernando Althabe, MD, MSc is Adjunct Professor of Public Health at the University of Buenos Aires, Adjunct Associate Professor at the Tulane Department of Epidemiology, Tulane University, Georgia, United States of America, and Director of the Department of Mother and Child Research at the Institute for Clinical Effectiveness and Health Policy (IECS) in Buenos Aires, Argentina.

Dr Althabe trained as an obstetrician and has 15 years working as a clinician. He obtained his Master degree in epidemiology from the University of London, United Kingdom of Great Britain and Northern Ireland.

He has considerable experience in designing and conducting multicentre, multinational randomized controlled trials in the implementation of research in maternal and child health. He has

conducted cluster, randomized trials to evaluate complex interventions to reduce unnecessary caesarean sections; to increase the use of Active management of the third stage of labour (AMTSL) and reduce episiotomy; to increase the use of brief counselling for tobacco cessation; and to increase the use of antenatal steroids and evaluate their effectiveness.

Dr Althabe has extensive experience in teaching research methods and currently coordinates a PhD Program for the University of Buenos Aires in Implementation Research together with Tulane University which is funded by Fogarty International Center, United States of America.

Dr Kalpana Baruah

Joint Director, National Vector Borne Disease Control Programme, Ministry of Health and Family Welfare, New Delhi, India



Dr Kalpana Baruah is the Joint Director of the National Vector Borne Disease Control Programme, Directorate General of Health Services, Ministry of Health and Family Welfare in India. Dr Baruah is also the country focal point for dengue and chikungunya; member of WHO Scientific and Technical Advisory Group on Geographical Yellow Fever Risk Mapping (2015); member for the Peer Review of WHO SEARO comprehensive guidelines on Dengue (2010); member of the Expert Group for the establishment and strengthening of Public Health Laboratories in India (2011); and member of the Task Force for the prevention and control of Dengue in Delhi. Dr Baruah is involved in monitoring Aedes breeding in international airports and seaports in India according to the International Health Regulations (IHR).

Dr Baruah received a PhD from Gauhati University, Guwahati, Assam State, in India. She has more than 29 years of experience in various national programmes such as the National Vector Borne Disease Control Programme, the National Centre for Disease Control, and the National Institute of Malarial Research. She was instrumental in developing the Sentinel Surveillance network for Dengue and Chikungunya in the National Programme.

She has developed Standard Operating Procedures on malaria microscopy and rapid diagnostic tests which were implemented under the Indian National Programme. Within this programme, she was also involved in the introduction of insecticide treated bed nets for malaria control and the capacity building of programme managers.

Dr Baruah has published approximately 30 scientific papers in national and international journals.

Dr Silvia Bino

Associate Professor of Infectious Diseases, Head, Control of Infectious Diseases Department, Institute of Public Health, Tirana, Albania



Dr Silvia Bino, MD, Ph.D, is the Head of the Control of Infectious Diseases and Immunization Department of the Institute of Public Health and an Associate Professor of Infectious Diseases at the Faculty of Medicine, Tirana University, Albania. She was the Director of National Public Health Institute from 2000-2006. She has coordinated infectious diseases control programmes, (including the immunization programme), helped to establish syndromic based early warning surveillance system, and, since 2014, has been working to establish an integrated mosquito control program in Albania.

She has also coordinated surveillance, diagnostic, and response activities for pandemic influenza A (H1N1) 2009, and seasonal influenza in Albania and beyond in South East European Region as part of the network to strengthen surveillance and control of communicable diseases. This has fostered early warning systems, policy development, preparedness and response, and expert and institutional collaboration in the implementation of the International Health Regulations.

She has been a consultant to WHO and other UN agencies and served as a member of the Strategic Advisory Group of Experts on Immunization until April 2009, the Review Committee on the Functioning of the International Health Regulations (2005) in relation to Pandemic Influenza A (H1N1) in 2009 and later on the Pandemic Influenza Preparedness Framework Advisory Group. She earned her medical degree from the Tirana University, Albania. She continued her postgraduate training and research studies on infectious diseases, microbiology, field epidemiology and public health in Switzerland, Belgium, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

She has published more than 30 papers in well quoted journals.

Dr Férehté Encha-Razavi

Associate Professor, University of Paris-Décartes, and Senior Consultant, Centres Pluridisciplinaires de Diagnostic Prénatal, Necker-Sick Children's Hospital, Paris, France



As a paediatrician involved in foetal pathology, Dr Férehté Encha-Razavi has conducted and participated in numerous research programs on foetal diseases, caused by genetic disorders or acquired (in hypoxic-ischemic context and/or during materno-foetal infections). In 2012, her group received the Moore award, delivered by the American Association of Neuropathologists, where she is registered as an active member. From 1998 to 2009, Dr Encha-Razavi was the head of the Unit of Foetal and Placental Pathology at the Necker Hospital, Paris, France, during which she developed the concept of pathological embryology, chaired a teaching program on human embryology and promoted research on developmental defects.

As a member of the French Society of Foetal Pathology, Dr Encha-Razavi served as President from 2005 to 2009, promoting teaching and research on foetal medicine and on its ethical and legal aspects.

Prior to joining the University of Paris-Décartes, Dr Encha-Razavi worked for ten years at the University Hospital of Baharami in Teheran, Islamic Republic of Iran, and was very much involved in social paediatrics and endemic infectious diseases.

Dr Encha-Razavi is the author of numerous textbooks and reports on foetal pathology, printed by international publishers and scientific journals with peer review.

Dr Anthony Evans

Consultant, Aviation Medicine Section, International Civil Aviation Organization, Montreal, Canada



Dr Anthony Evans is a consultant (and formerly Section Chief) to the Aviation Medicine Section at the International Civil Aviation Organization (ICAO). He is also the former Manager of the "Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation", a global multi-sector programme of ICAO that, in collaboration with WHO and other partners, promotes and facilitates the implementation of International Health Regulations (IHR) core capacities in the aviation sector.

Previously, Dr Evans was the Chief Medical Officer of the Civil Aviation Authority for the United Kingdom of Great Britain and Northern Ireland.

Dr Evans' fields of professional concentration also include the development and implementation of harmonised medical requirements for pilots and air traffic controllers.

Other current professional activities include memberships in the Faculty of Occupational Medicine of the United Kingdom, of the Society of Occupational Medicine and of the Royal Aeronautic Society. He is also a Fellow of the Aerospace Medical Association and Secretary General of the International Academy of Aviation and Space Medicine.

Dr Evans has been a consultant to the World Health Organization, a member of the IHR Emergency Committee concerning Influenza Pandemic (H1N1) and is currently an adviser to the IHR Emergency Committees concerning Ebola, Poliomyelitis and Middle East Respiratory Syndrome Coronavirus.

Professor David O. Freedman

Departments of Medicine and Epidemiology, University of Alabama at Birmingham, United States of America



Dr Freedman has been on the Infectious Diseases faculty at the University of Alabama at Birmingham since 1989 where he founded the UAB Travelers' Health Clinic. For 18 years, until 2013, he was Director of the global GeoSentinel Surveillance Network which he co-founded and which currently maintains the largest database of ill travelers available.

GeoSentinel is a network of 60 travel/tropical medicine units on six continents that is primarily funded by the United States Centers for Disease Control and Prevention. Over 40 publications from the consortium have defined pathogens, risks and threats to receiving countries.

Since 2005, he has served as President of the Gorgas Memorial Institute, headquartered in Birmingham, which focuses on education and research in tropical diseases affecting the

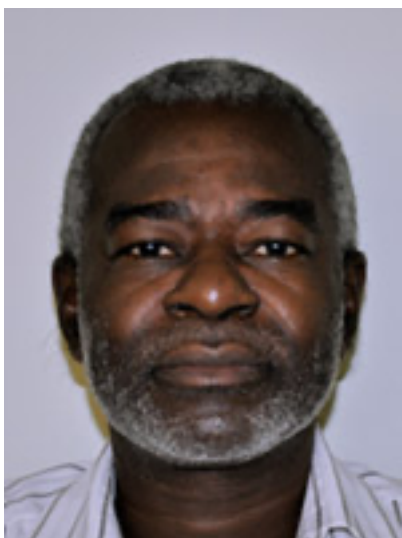
Americas. He co-directs the Gorgas Courses in Clinical Tropical Medicine that are given in Peru; over 700 physicians from 65 countries have received training at Gorgas. He was Secretary-Treasurer of the International Society of Travel Medicine from 2005-13 and is co-Editor of the textbook, Travel Medicine, now in its 3rd Edition. He is Associate Editor of the Emerging Infectious Diseases Journal and on the Editorial Board of the Journal of Travel Medicine.

He has been Chair of the Advisory Panel on Parasitic Diseases of the United States Pharmacopeia, and a Councillor of the American Society of Tropical Medicine and Hygiene.

In addition to Peru and Panama, Professor Freedman has participated in research projects in Guatemala. He has also worked for over a decade at the Oswaldo Cruz Foundation in north-eastern Brazil.

Dr Abraham Hodgson

Director, Research and Development Division, Ghana Health Service, Accra, Ghana



Dr Abraham Hodgson is medical doctor and public health specialist who was Director of the Navrongo Health Research Centre from 2000 to 2011. He is currently the Director of the Research and Development Division of the Ghana Health Service. He had conducted research mainly in cerebrospinal meningitis. He is currently the Co-Principal Investigator of the maternal and child health study funded by the Japan International Cooperation Agency on continuum of care in Ghana.

Dr Nyoman Kandun

Program Director, Field Epidemiology Training Program , Jakarta, Indonesia



Dr Nyoman Kandun graduated from the School of Medicine, University of Gadjah Mada, Yogyakarta, Indonesia. He achieved his Master degree of public health from the Institute of Public Health, University of the Philippines System, Manila. He later graduated from Indonesia's Field Epidemiology Training Program (FETP). Prior to his current duty as Program Director of the Indonesian FETP which he has held since 2008, he served as a civil servant for 33 years. Dr Kandun retired from the Ministry of Health in 2008 with his last position being Director General of Disease Control and Environmental Health.

Alongside his role as FETP Director, Dr Kandun also actively supports a number of public health programmes and activities. He was a member of various organizations, such as the Advisory Board of the National Agency for Disaster Management , the

Immunization Technical Advisory Group WHO/SEARO, an Emeritus Member of the Board of Trustee of the International Vaccine Institute (IVI), a member of the Subcommittee of Health Research WHO-SEARO, a member of the Board of Directors of the South Asia Field Epidemiology Training and Technology Network, the Chairman of the National Task Force of Lymphatic Filariasis Elimination, an Expert for the Committee of the National Commission of Zoonotic Diseases Control, a member of the Global Health Security Agenda Expert Committee, and Chair of the Accreditation Commission of Primary Health Care in Indonesia.

He frequently lectures on public health issues at universities and training courses in Indonesia and as a speaker at national and international events.

Professor Ghazala Mahmud

Head of department of Obstetrics and Gynaecology, Fazia Medical College, Islamabad, Pakistan



Dr Ghazala Mahmud graduated in 1976 and obtained a Fellowship of the Royal College of Obstetricians and Gynaecologists,, United Kingdom of Great Britain and Northern Ireland, in 1999. She is currently engaged in establishing a new Hospital and Department of Obstetrics and Gynaecology at the Fazaiah Medical College, Air University Islamabad, Pakistan. She has previously worked as a teaching fellow at the University of Oxford, United Kingdom of Great Britain and Northern Ireland. She became Dean at the Pakistan Institute of Medical Sciences (PIMS) in 2008 and Dean at the Faculty of Medicine at Quaid e Azam University, Pakistan.

As the founding Professor and Head, she was involved with the planning, implementation and running of a 150-bed Mother and Child Health joint project with the Japan International

cooperation Agency . She was the National Programme Manager of the MCH-JICA safe motherhood project at PIMS (1996-2001) in Islamabad, Pakistan, where she undertook comprehensive maternal health research studies and trained health care professionals including female health workers and birth attendants both in health facilities and communities.

She served as a member to the technical advisory group “Abortion Study” by the Population Council, Women’s Health Project (WHP) from 2002 to 2007, and Maternal newborn and child health from 2008 to 2012.

From 2007 to 2014, she was a member of the WHO EMRO-AFRO regional advisory panel for research in reproductive health. Since 2014, she has been on the International Health Regulations Roster of Experts.

She has travelled widely to attend various seminars, conferences and represented the Government of Pakistan at various international forums. She has written 64 publications, she is the author of four books published in Indian/Oxford Text books, the resource person for local maternal health information pamphlets, and the Emergency Obstetrics and Newborn Care Manual for national training since 2007.

She has won awards for outstanding research, two gold medals for Maternal, Newborn and Child Health and an Honorary Fellowship of the College of Physicians and Surgeons Pakistan.

Dr Dirk Glaesser

Director, Sustainable Development Programme, World Tourism Organization, Spain



Dr Dirk Glaesser is the Director for Sustainable Development of Tourism at the World Tourism Organization (UNWTO). The SDT programme deals with the different challenges and opportunities of tourism development, among them environment and planning, investment and finance, and safety and security.

Under his supervision, the programme engages in top-level coordination with the World Health Organization,, the International Civil Aviation Organization, the United Nations System Influenza Coordination and the Tourism Emergency Response Network to promote safe travel behavior and has closely monitored the various health emergencies, from Pandemic Influenza A (H1N1) 2009 to the most recent Ebola epidemics, and their impact on travel and tourism.

Dr Glaesser is an advisor to the International Health Regulations

Emergency Committee on Ebola.

Professor Duane J. Gubler

Professor and Founding Director, Signature Research Program in Emerging Infectious Diseases, Duke-NUS Medical School, Singapore



Professor Dr Duane J. Gubler is Professor and Founding Director of the Signature Research Program in Emerging Infectious Diseases at the Duke-NUS Medical School, Singapore. He is Adjunct Professor in his alma mater, Johns Hopkins Bloomberg School of Public Health and the Duke University School of Medicine, United States of America.

He has spent his entire career working on tropical infectious diseases with an emphasis on dengue and dengue haemorrhagic fever. He has extensive field experience in Asia, the Pacific, tropical America and Africa, and has published extensively in the area of dengue and other vector-borne infectious diseases.

Professor Gubler was the founding Chief of the Dengue Branch, United States Centers for Disease Control and Prevention (CDC) in Puerto Rico for nine years, Director of the Division of Vector-

Borne Infectious Diseases in Fort Collins, CDC for 15 years and Chair, the Department of Tropical Medicine, Medical Microbiology and Pharmacology, University of Hawaii School of Medicine, in Honolulu for five years.

He has served on numerous WHO and national committees and study groups, and was the founding Chair, Board of Councilors, Paediatric Dengue Vaccine Initiative. He currently serves on the Scientific Advisory Boards of a number of companies and institutions.

Professor Gubler serves as Chairman of the Partnership for Dengue Control, a global alliance of experts in the dengue community. He is a Fellow of the Infectious Disease Society of America and the American Association for the Advancement of Science, and a Past President of the American Society of Tropical Medicine and Hygiene.

Dr Leonard Mboera

Chief Research Scientist and the Director of Information Technology and Communication, National Institute for Medical Research, Tanzania



Dr Mboera holds a PhD in Mosquito Chemical Ecology from the Wageningen University and Research Centre, Kingdom of the Netherlands, Bachelor of Veterinary Medicine of the Sokoine University of Agriculture, Tanzania, MSc in Applied Entomology (Medical/Veterinary) of University of London and Diploma from Imperial College, London, United Kingdom of Great Britain and Northern Ireland.

Dr Mboera joined the National Institute for Medical Research, Tanzania in October 1992 as a research scientist. Prior to that he worked as a veterinary surgeon and trainer with Ministry of Agriculture and Livestock Development, Research and Training Central Zone in Mpwapwa, Tanzania.

Dr Mboera has carried out considerable research into mosquito ecology, malaria epidemiology, ecosystems and health systems.

He is recognized for his scientific knowledge on malaria and lymphatic filariasis mosquito resource

seeking behaviours. His studies in mosquito behavior have changed the sampling techniques for anthropophilic mosquitoes in Sub-Saharan Africa.

Dr Mboera was the first coordinator of the East African Integrated Disease Surveillance and leader in the Tanzania National Integrated Disease Surveillance and Response Strengthening Project. He has served on a number of national, regional and international committees; namely as a Member of the Executive Board of Southern Africa Climate Change Network; Chair of the Regional Southern Africa Centre for Infectious Disease Surveillance, a Member of the Research Ethics Committee at the University of Dar es Salaam, Tanzania; Secretary General of the East African Public Health Association, and a member of the Editorial Advisory Committee of the Rwanda Journal of Health Research. He is the Editor of the Tanzania Journal of Health Research and Associate Editor of the East African Journal of Public Research. Dr Mboera has published 116 scientific articles in biomedical and health systems, including three books and one book chapter.

Dr Maria Mercedes Muñoz Ramírez

Coordinator of the Group for Public Health Surveillance, Department of Epidemiology and Demography, Ministry of Health and Welfare, Bogota, Colombia



Dr Maria Mercedes Muñoz Ramírez is a medical surgeon who graduated from the National University of Colombia, Bogota, Colombia. She is an epidemiology specialist at the University of Antioquia, Medellin, Colombia and holds a Master in Public Health. Her work experience has been carried out over the last 14 years in the country's official sector and international cooperation agencies.

Dr Munoz has worked at the Santiago de Cali and Social Security Institute, where she developed epidemiological profiles and led public health surveillance matters at the San Pedro Claver Hospital. As a member of the Group for Public Health Surveillance, which belonged to the General Public Health Directorate at the Ministry for Social Welfare, she participated in the H1N1 pandemic response.

She is the focal point for the International Health Regulations in Colombia and has coordinated surveillance processes of emerging events in America such as Ebola, Chikungunya and Zika virus. She has worked as a national consultant with international aid agencies, where agreements have been finalized between the Pan American Health Organization, Regional Office for the Americas of the World Health Organization, and World Food Program.

Dr James Meegan

Director, Office of Global Research, National Institute of Allergy and Infectious Diseases National Institute of Health, United States Department of Health and Human Services, United States of America



James M. Meegan received his PhD from the University of Connecticut, and has had a long career in science, specializing in microbiology/virology, infectious diseases, and arthropod-borne and haemorrhagic fever viruses.

He has held research positions at University of California at Berkeley, Yale Medical School, United States Army Institute of Infectious Diseases, Fort Detrick, and the Naval Medical Research Institute and at its overseas laboratories.

He has held leadership positions at the World Health Organization (Geneva 1988-92), the National Institutes of Allergy and Infectious Diseases (NIAID) at the United States National Institutes of Health (NIH), and was a Senior Director of Research and Development at Invitrogen/Life Technologies Corporation.

Since 2012, he has re-joined NIH as the Director of Global Research at NIAID. His research programs have focused on the role of viral diseases in international health and tropical medicine.

He has many distinguished awards, has published numerous scholarly manuscripts, and has been a consultant and advisor to various individual countries, scientific groups and commissions.

Dr K.U. Menon

Senior Consultant with the Ministry of Communications and Information and the Arts, Singapore



Dr Menon is a Senior Consultant with the Ministry of Communications and Information in Singapore. For over a decade, he headed the National Resilience Division responsible for emergency planning, and coordinating information flow during all civil and national emergencies, such as the Silkair MI 185 air crash, the collapse of Barings Bank, the influx of Vietnamese refugees; and the outbreaks of SARS, Avian influenza, H1N1 pandemic to name a few.

He began his career in research with the Ministry of Defence in 1978. Prior to his deployment to the Ministry of Information, Communications and the Arts, he was a Research Fellow at the Institute of Southeast Asian Studies (ISEAS) with a special interest in the security of small states in South East Asia.

He has an honours degree in Social Anthropology from Victoria

University of Wellington, New Zealand, and a Bachelor of Arts in Communications and Media Management from the University of South Australia. He undertook postgraduate work in political science at Monash University, Melbourne, Australia.

He has published articles in political science journals and monographs during his term at ISEAS and more recently in the Journal of Communications Management (London), Annals of the Academy of Medicine (Singapore) and with S. Rajaratnam, School of International Studies at Nanyang

Technological University, Singapore, touching on issues of Public Health and Risk Communications.

He retired in 2009, but continues to be engaged full-time by the Ministry of Information, Communications and the Arts in Singapore.

Dr Rafael Obregón

Chief of the Communication for Development Section at the United Nations Children's Fund , New York, United States of America



Dr Rafael Obregón provides technical leadership and guidance on the development of standards, guidelines, and quality assurance for the application of communication for development principles and strategies across programmatic areas of the United Nations Children's Fund (UNICEF), including emergency response and humanitarian action.

He has served as Regional Advisor for Health Communication within the Area of Family and Community Health and Child and Adolescent Health Unit at the Pan American Health Organization, Regional Office for the Americas of the World Health Organization (PAHO/WHO). Dr Obregón has also been a technical advisor, researcher and resource/focal person for international/national cooperation agencies and government and non-governmental organizations. His duties have focused on

formative research, project design and evaluation, and capacity strengthening. Dr Obregón has also been associate professor and guest faculty member at a number of universities, including Ohio University, United States of America, the Universidad del Norte in Barranquilla, Colombia, and the Universidad Autónoma in Barcelona, Spain.

Throughout his career, he has written several books, book chapters, monographs, manuals, peer-reviewed journal articles and reports on public health communication, participatory communication and capacity development. He is a member of several editorial boards including the Journal of Health Communication, and has been a member of several scientific committees including the World Congress on Communication and Development, convened by the World Bank, the Food and Agriculture Organization of the United Nations and the Communication Initiative, as well as a member of the Technical Advisory Group for the Global Health Communication Partnership within the Center for Communication Programs at Johns Hopkins University, Baltimore, United States of America.

Dr Obregón earned his PhD in an Interdisciplinary Program in Mass Communications, with a concentration on international health, at the College of Communications at Pennsylvania State University, United States of America, in 1999. He received his Master of Arts in International Affairs and Communication and Development from Ohio University, United States of America, in 1994 with a minor in public health. Additionally, he obtained a Diploma in Education and Pedagogy through the National Apprenticeship Service in Colombia in 1990.

Dr Amadou Alpha Sall

Director of the WHO Collaborating Center for arboviruses and viral haemorrhagic fevers, Institut Pasteur de Dakar, Senegal



Dr Amadou A. Sall is a virologist and has a PhD in Public Health. He received his scientific education at Universities Paul Sabatier at Toulouse, Paris Orsay and Pierre et Marie Curie in France. He has also visited several laboratories for his training including Institut Pasteur in Paris, France; Institute of Virology and environmental medicine in Oxford, United Kingdom of Great Britain and Northern Ireland; Center for tropical disease at the University of Texas Medical Branch at Galveston, United States of America (USA) and the Albert Einstein College of Medicine of Yeshiva University, New York, USA.

From 2002 to 2004, Dr Sall worked in Cambodia as Head of the viral hepatitis laboratory at the Institut Pasteur Cambodia. From 2010 to 2011, he worked as a Visiting Research Scientist at the Center for Infection and Immunity at the Mailman School of

Public Health at Columbia University, New York, USA, on pathogen discovery.

He is currently Head of the Arboviruses and viral haemorrhagic fever unit, Director of the WHO Collaborating Center and Scientific Director of the Institut Pasteur de Dakar, Senegal, which belongs to the Institut Pasteur International Network. His research focuses primarily on diagnostics, ecology and evolution of arboviruses and viral haemorrhagic fevers. Dr Sall has published more than 100 papers and book chapters and has given more than 150 scientific communications at international meetings. Dr Sall is a member of several WHO expert groups, including the Global Outbreak and Alert Response Network and the Strategic Advisory Group of Experts on Immunization. He has also worked as a consultant for the World Organisation for Animal Health.

Dr Jennifer Erin Staples

Medical Epidemiologist, Arboviral Disease Branch, Division of Vector-borne Diseases, Centers for Disease Control and Prevention, Atlanta, United States of America



Dr Jennifer Erin Staples, MD, PhD, is a medical epidemiologist with the Arboviral Diseases Branch, Division of Vector-Borne Diseases at the Centers for Disease Control and Prevention (CDC), National Center for Emerging and Zoonotic Infectious Diseases, United States of America. She is responsible for a wide variety of arboviral diseases, focusing particularly on yellow fever, Chikungunya, Zika virus disease, blood and transplant associated arboviral infections, and tick-borne arboviral diseases.

Her past work experiences includes bacterial zoonotic diseases at the CDC, vaccine development in industry, and clinical work in pediatric infectious diseases.

Dr Staples has both a medical degree and a doctoral degree in microbiology and immunology and she has published on a

variety of subjects.

Dr Pedro Fernando da Costa Vasconcelos

Director, Evandro Chagas Institute; Director, National Reference Laboratory for Arboviruses; and Director, National Institute for Viral Hemorrhagic Fevers, Ananindeua, Brazil



Dr Pedro Fernando da Costa Vasconcelos is Head of the Instituto Nacional de Ciência e Tecnologia para Febres Hemorrágicas Virais-INCT-FHV (Brazil's National Institute of Science and Technology for Viral Hemorrhagic Fevers), located at the headquarters of the Instituto Evandro Chagas (IEC), Brazil's Ministry of Health, in Ananindeua, Pará state.

He is a member of Department of Arbovirology and Haemorrhagic Fevers at the Evandro Chagas Institute (IEC). He was Head of Department from 1998 to 2014, and Director of IEC from 2014 to 2015. In 2016, he was reappointed Director of IEC. Dr Vasconcelos is also a fellow researcher of Brazil's Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq – National Council for Scientific and Technological Development); and Director of the WHO Collaborating Center for Arbovirus Reference and Research at the IEC. He completed his medical degree at the Medical School of the Universidade Federal do

Pará, in Belém, and pursued a specialty in tropical medicine at Universidade de São Paulo.

Dr Vasconcelos received a PhD from Universidade Federal da Bahia, in Salvador, and completed his post-doctoral studies in Molecular Virology in the Department of Pathology at the University of Texas Medical Branch, in Galveston (USA). He is a member of the editorial boards of three scientific journals: Revista Pan-Amazônica de Saúde (and an Associate Editor for the Virology area); Open Epidemiology Journal; and Vector-Borne and Zoonotic Diseases.

Professor Michael Selgelid

Director, Centre for Human Bioethics, Monash University, Melbourne, Australia



Professor Michael Selgelid is Director of the Centre for Human Bioethics and the WHO Collaborating Centre for Bioethics at Monash University in Melbourne, Australia. His fields of professional concentration include philosophy, applied ethics, bioethics, public health ethics and infectious disease ethics. Professor Selgelid serves as a member of the Board of Directors of the International Association of Bioethics, the Scientific Committee of the Brocher Foundation, the General Ethical Issues Sub-committee of the Alfred Hospital Ethics Committee and the Ethics Review Board of Médecins Sans Frontières (MSF). His research focuses on bioethics and public health ethics, with emphasis on ethical issues associated with biotechnology and infectious disease. He is Co-Editor of the journal Monash Bioethics Review and Editor of a Springer-Nature book series in

Public Health Ethics Analysis.

Professor Selgelid's engagements with WHO have included the following: Director of two WHO Collaborating Centres for Bioethics at Monash University and the Australian National University, Chair of Global Network of WHO Collaborating Centres for Bioethics, Member of the Ethical Issues in Public Health Surveillance Guideline Development Group, Advisor at the Expert Consultation on the Use of Placebo in Vaccine Trials, and Member of the Working Group on Ethical Issues in Research and Surveillance: Epidemics, Pandemics and Public Health Crises. He has also served as Member of the

Strategic Advisory Group of Experts (SAGE) Working Group on H5N1 Vaccine and as Advisor on Ethical Issues in Pandemic Influenza Planning.

Professor Selgelid also participated as an Advisor to the International Health Regulations (IHR) Emergency Committee regarding Ebola and as an Advisor to the Consultation on the Ethical Considerations for Use of Unregistered Interventions for Ebola Virus Disease, within the framework of the 2014-2015 Ebola Virus Disease outbreak in West Africa. In April 2016, he participated in the Pan American Health Organization (PAHO) Zika Ethics Consultation.

Dr Annelies Wilder-Smith *

Professor at the Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore



Dr Annelies Wilder-Smith is Professor of Infectious Diseases Research at the Lee Kong Chian School of Medicine, Singapore. A world renowned expert in travel and tropical medicine, she is the President of the International Society of Travel Medicine (ISTM), Past-President of the Asia Pacific Society of Travel Medicine, and former Chair of the Regional ISTM Conference in Singapore. She is also the Scientific Director of ZikaPLAN, an European Union funded global consortium for a Zika Preparedness Latin American Network.

Her special research interests include vaccine preventable and emerging infectious diseases, in particular dengue, Zika, influenza and meningococcal disease. With a career spanning over two decades, she has led and co-led various clinical trials, published more than 190 scientific papers, edited and co-edited

textbooks and travel medicine books, served on various editorial boards and scientific committees, including being editorial consultant to The Lancet. She has been a consultant to the World Health Organization and co-editor of the annual WHO publication "International Travel and Health". She is currently a member of the International Health Regulations (IHR) Emergency Committees for Polio and Yellow Fever.

Her awards include the Myrone Levine Vaccinology Prize, the Honor Award for exemplary leadership and coordination in determining and communicating global yellow fever risk presented at the Centers for Disease Control (CDC) Award Ceremony, the Mercator Professorship award by the German Research Foundation and the Ashdown Oration Award by the Australian College of Travel Medicine. She is currently the Principal Investigator of a European Union funded international consortium called "DengueTools", Senior Advisor to the Dengue Vaccine Initiative, and serves on "Partnership for Dengue Control".

Dr Kamran Khan *

Associate Professor Faculty of Medicine, Division of Infectious Diseases, University of Toronto, and Clinician-Scientist St. Michael's Hospital, Toronto, Canada



Dr Khan is a clinician-scientist at the Li Ka Shing Knowledge Institute at St. Michael's Hospital and an Associate Professor with the Department of Medicine, Division of Infectious Diseases and the Institute of Health Policy, Management and Evaluation at the University of Toronto.

Motivated by his experiences during the Toronto SARS epidemic, Dr Khan has been studying the role of globalization in the emergence and spread of novel and re-emerging infectious diseases for more than a decade. A particular area of research interest focuses on understanding global population mobility and the spread of human pathogens via the worldwide airline transportation network. This has included research on epidemic risks associated with international mass gatherings. More recently, his research has focused on modelling the population

health consequences of emerging infectious diseases such as MERS, Chikungunya, Ebola and Zika. Over the past decade, Dr Khan has published extensively in these areas. As a clinician, his work focuses on the management of infectious diseases such as tuberculosis in immigrant and refugee populations newly arriving to Canada.

Since 2010, Kamran has been partnering with the Division of Global Migration and Quarantine at the U.S. Centers for Disease Control and Prevention under a program called BioMosaic. A central goal of the program is to harness the power of big data and technology to support time-sensitive decision-making during public health emergencies.

Professor Claudia Torres Codeço *

Head of the Scientific Computing Program, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil



Professor Claudia Codeço, PhD, is a Full Professor at the Oswaldo Cruz Foundation (Fiocruz), and Chair of Epidemiological Modelling at the Epidemiology in Public Health Program, National School of Public Health (ENSP/Fiocruz).

Her background is in epidemiological and ecological modelling. She has spent the last 15 years designing field studies and modelling dengue vector dynamics as well as assessing optimal approaches for monitoring dengue vector activity.

Since 2014, she has co-led InfoDengue, an early warning system for dengue, which helps hundreds of Brazilian municipalities to efficiently deploy control strategies against this disease.

InfoDengue is currently being expanded to provide continual epidemiological modelling to Zika and Chikungunya, as well as performing syndromic surveillance for other arboviroses.

Professor Codeço acts as an Advisor to the State and City of Rio de Janeiro Health on issues related to arboviruses. In collaboration with the Brazilian Ministry of Health, she is also developing new analytical tools for the surveillance of influenza.

Professor Codeço has been awarded the title of Distinguished Researcher of the State of Rio de Janeiro, and is among the leading Epidemiologists of Brazil recognized by the Brazilian Research Council, CNPq.

* Advisor to the third meeting of the International Health Regulations (2005) Emergency Committee on Zika virus and observed increase in neurological disorders and neonatal malformations.