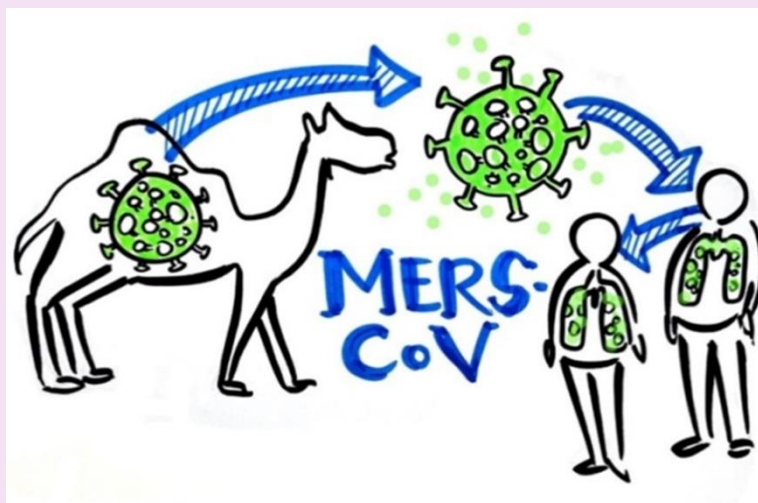


# The Guideline Development Group focused on Clinical and Diagnostic Specific Middle East respiratory syndrome coronavirus (MERS-CoV)

## Biographies

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# Overview

For the development of the *Clinical and Diagnostic-Specific Guideline for Middle East respiratory syndrome coronavirus (MERS-CoV)*, a Guideline Development Group (GDG) is being convened, comprising experts with diverse and complementary expertise across multiple specialties and geographic regions.

The World Health Organization (WHO) technical team coordinated the process of collecting and managing Declarations of Interests (DOIs), which were submitted upon joining the GDG and will be updated at each subsequent meeting.

WHO gratefully acknowledges the invaluable contributions of all GDG members and extends sincere thanks for their dedication and support in achieving robust, evidence-based recommendations for the clinical management and diagnostic approaches for MERS-CoV.



## Genan Mohammad Albather

Genan Mohammad Albather is a senior nursing leader currently serving as the Group Manager of Nursing Strategic Leadership and Clinical Affairs at the Health Services, Headquarters of the Eastern Health Cluster in Saudi Arabia.

She holds a Master of Science in Nursing with a focus on Community Health from King Saud University and a BSN from King Faisal University (Imam Abdulrahman Bin Faisal University).

With extensive experience in nursing and healthcare management, Albather has made significant contributions to the advancement of nursing practices, patient safety, and the transformation of care models. Her leadership has been instrumental in aligning clinical standards with the goals of the Saudi Ministry of Health and the Eastern Health Cluster through the development and review of organizational policies, procedures, and work manuals. Certified as a Baby-Friendly Hospital Initiative (BFHI) Counsellor, Certified Diabetes Educator (CDE), and Trainer of Trainers (TOT), Albather has led numerous training programs for nurses and interdisciplinary teams. She is recognized for her visionary leadership, collaborative approach, and dedication to empowering nursing professionals. Her commitment to quality improvement, patient-centered care, and staff well-being continues to shape a culture of excellence and innovation in nursing services across the region.

For DOI, see the Annex.



## Dr Fatimah Alshakhs

Dr Fatimah Alshakhs is the founder of the Respiratory Care Administration in Al-Ahsa Governorate and served as Director of its departments during disease crises. She is also a Member of the Advisory Committee responsible for supervising respiratory departments across the Kingdom during COVID-19 crises.

Her academic contributions include participation in several research studies, notably New-onset and Relapsed Liver Diseases Following COVID-19 Vaccination: A Systematic Review and Colorectal Cancer in Patients with SARS-CoV-2: A Systematic Review and Meta-analysis, reflecting her interest in the clinical impacts of emerging infectious diseases, also smoking and pulmonary function risks.

She holds the FRCS Certificate of the American Association for Respiratory Care (AARC) and has extensive specialized clinical experience in respiratory care, with hands-on expertise gained through frontline practice.

For DOI, see the Annex.



## Prof Jaffar A. Al-Tawfiq

Jaffar A. Al-Tawfiq is a distinguished expert in MERS and emerging infectious diseases, recognized for his extensive research and contributions to the field. In May 2025, he won the Vaccine Research and Innovation Award at the 7<sup>th</sup> Saudi International Vaccination Forum for his yearslong studies across multiple fields of vaccinology.

Al-Tawfiq has authored and co-authored approximately 100 peer-reviewed papers on MERS, demonstrating his commitment to advancing knowledge in this critical area. His significant involvement includes serving as a member of the Saudi Ministry of Health committee to respond to MERS and participating on the Saudi Public Health Authority MERS research committee. Additionally, he was a member of the Saudi Ministry of Health delegation that responded to the 2015 MERS outbreak in South Korea. In recognition of his impactful work, he was awarded the SHEA Award at ID Week 2019 in the United States for his contributions to MERS research.

Al-Tawfiq completed his medical education at King Faisal University in Saudi Arabia before pursuing an internal medicine residency at Indiana University School of Medicine in the United States. He further completed a fellowship in infectious diseases at the same institution.

In addition to his research accomplishments, Al-Tawfiq's expertise encompasses patient safety with certifications from the Armstrong Institute for Patient Safety at Johns Hopkins University and the Institute for Healthcare Improvement in Boston. He is an active academic researcher and serves as an Adjunct Professor at Indiana University in Indianapolis and as an Adjunct Associate Professor at Johns Hopkins University School of Medicine, in Baltimore. He is a consultant of internal medicine and infectious diseases, and the director of accreditation and infection control at Johns Hopkins Aramco Healthcare, Dhahran, Saudi Arabia. Al-Tawfiq has made substantial contributions to the fields of infectious disease research and clinical leadership.

For DOI, see the Annex.



## Dr Yaseen Arabi

Yaseen Arabi is a recognized leader in critical care research, particularly in the fields of randomized controlled trials in sepsis, mechanical ventilation, Coronavirus disease 2019 (COVID-19), and MERS. He has led numerous landmark randomized controlled trials that have been published in the world's leading medical journals.

His notable work includes the PREVENT trial (*Prophylaxis of Thromboembolism in Critically Ill Patients Using Combined Intermittent Pneumatic Compression and Pharmacologic Prophylaxis versus Pharmacologic Prophylaxis Alone: A Multicenter Randomized Controlled Trial*), the MIRACLE trial (*MERS-CoV Infection Treated with*

*a Combination of Lopinavir/Ritonavir and Interferon Beta-1B: A Placebo-Controlled, Double-Blind Randomized Trial*), and the PERMIT trial (*The Impact of Permissive Underfeeding versus Target Enteral Feeding on Mortality and Morbidity in Adult Critically Ill Patients: A Multicenter Randomized Controlled Trial*). All of these studies were published in the *New England Journal of Medicine (NEJM)*.

Arabi has collaborated extensively with leading international research groups, including the Australian and New Zealand Intensive Care Society (ANZICS) and the Canadian Critical Care Trials Group (CCCTG), on multiple high-impact randomized trials.

His leadership and scientific contributions have been recognized through numerous prestigious awards, including:

- Saudi Universities Excellence Award in Scientific Productivity in Medical Sciences (Web of Science) and the Ministry of Health Pioneer Research Award (2019)
- Distinguished Scientist Award from Almarai (2017) and the Almarai Award for Innovation (2017)
- 2nd Annual Lifetime Achievement Award from the Saudi Critical Care Society (2013)
- Barry A. Shapiro Memorial Award for Excellence in Critical Care Management, Society of Critical Care Medicine, USA (2011)

Dr Arabi's research group has published groundbreaking studies in *NEJM*, *JAMA*, *The Lancet*, and other high-impact journals. He has authored over 600 peer-reviewed papers, including 38 publications in *NEJM*, *JAMA*, and *The Lancet*.

For DOI, see the Annex.



## **Prof Mamadou Dioulde Balde**

Mamadou Dioulde Balde is a distinguished professor of gynecology and obstetrics at the University of Conakry, Guinea.

Professor Balde holds a postgraduate degree from the University of Heidelberg, Germany. For several years, he has served as the coordinator of the Centre for Research in Reproductive Health in Guinea (CERREGUI). Under Professor Balde's leadership, his team of scientists has conducted numerous research projects, supported by esteemed international institutions such as WHO, the United Nations Population Fund (UNFPA), the World Bank, and the United States Agency for International Development (USAID).

The findings from these projects have significantly influenced various health policies and programs in Guinea. Professor Balde is also a prolific author, having published extensively in renowned international scientific journals.

For DOI, see the Annex.



## Dr Bin Cao

As a physician-scientist, Bin Cao is a leader of respiratory medicine in China and worldwide. Dr. Cao's research is focused on respiratory infections, especially emerging respiratory viruses.

He established the first nationwide pneumonia research network in China (CAP-China) and first revealed that viral pneumonia accounts for 39.2% of adult hospitalized pneumonia cases in China. He was the first in the world to reveal the clinical characteristics of COVID-19, providing valuable references for global physicians.

He established internationally recognized indicators for evaluating the efficacy of interventions in viral pneumonia: the "7-level scale" and "11 core symptoms" endpoint indicators, addressing the global issue of the lack of standardized evaluation criteria for antiviral drug efficacy.

Dr. Cao led the first COVID-19 clinical trial in the world and confirmed that the treatment of COVID-19 with lopinavir/ritonavir was ineffective, avoiding rewriting the global COVID-19 guidelines. His research confirmed the clinical efficacy of the simnotrelvir in treating COVID-19, providing globally affordable antiviral medications for COVID-19. He pioneered the original concept of "Respiratory Viral Sepsis", which extended the theory of sepsis. He discovered four recovery patterns of long COVID biological processes, providing targets for early identification and intervention of long COVID.

Dr. Cao has published over 220 original peer reviewed articles and reviews, including 11 landmark original research articles in top journals such as Lancet, NEJM and Nat Med, with over 140,000 citations (Google Scholar). He was elected as "Highly Cited Chinese Researchers" by Elsevier for seven consecutive years. He has also led or contributed to the development of 11 national guidelines or consensus documents and edited 10 authoritative medical monographs.

For DOI, see the Annex.



## Prof Allen C. Cheng

Allen Cheng is an infectious diseases physician and epidemiologist. He is Professor/Director of Monash Infectious Diseases at Monash Health and Monash University, Australia. He has published more than 400 peer reviewed scientific publications on clinical infectious diseases.

He has served on several Australian technical advisory committees, including as Chair of the Advisory Committee for Vaccines (2017-22) and Co-Chair of the Australian Technical Group on Immunisation (ATAGI 2018-22). He is a member of the National Respiratory Infection Surveillance Committee and the Communicable Diseases Network of Australia. During the COVID-19 pandemic, he was a member of the Australian Health Protection Principal Committee (2020-22), and was seconded to the Victorian Department of Health as Deputy Chief Health Officer (2020-21). His work has been recognized as a Companion of the Order of Australia (2025), and as recipient of a National Health and Medical Research Council Excellence Award (2014).

He was a member of the Guidelines Leadership Group of the Australian National COVID-19 Evidence Taskforce. He has been a technical advisor to the World Health Organization, resulting in international guidelines for management of sepsis and for severe H1N1/09 infection.

For DOI, see the Annex.



## Prof André Ricardo Araujo da Silva

André Ricardo Araujo da Silva holds a PhD in Clinical Research (FIOCRUZ) and a Master's at Infectious and Parasitic Illnesses from Universidade Federal do Rio de Janeiro, Brazil. A visiting professor at Ludwig-Maxmillians-Universität, Germany, he has experience in Medicine, in particular the following subjects: antimicrobial stewardship, prevention and control of healthcare-associated infections, undergraduate medicine teaching, antimicrobial multiresistance and COVID 19.

Araujo da Silva is a Member of International Federation of Infection Control (IFIC) and the World Health Organization's (WHO) Guideline Development Group (GDG) for COVID-19 treatment, Influenza treatment and MIS-C in children, a Coordinator of Teaching Laboratory of prevention of Healthcare-associated infections and an Associate Professor of Medicine at the Federal Fluminense University (UFF-Brazil).

For DOI, see the Annex.





## Dr Bart Haagmans

Bart Haagmans is an associate professor at the Department of Viroscience of Erasmus MC, the Netherlands. He is a recognized leader in the field of coronaviruses with a main research focus on the pathogenesis of emerging viral infections.

his studies on MERS and SARS coronaviruses led to a more detailed understanding of the biology of these emerging viruses and novel intervention strategies to contain outbreaks.

He recently developed several organoid systems from humans and different animal species to study virus-host interactions.

Haagmans is a member of the Coronavirus study group of the International Committee on Taxonomy of Viruses (ICTV).

He received the lifetime achievement award from the European Congress of Clinical Microbiology and Infectious Diseases (ECMIDD), acted as (co)-coordinator of the Innovative Medicine Initiative (IMI)-funded Zoonoses Anticipation and Preparedness Initiative (ZAPI) and several Dutch grants, and is a Co-Principal Investigator on European Union (EU) grants as well as two CEPI funded vaccine projects. He is an expert consultant of WHO, the Food and Agriculture Organization of the United Nations (FAO), and the World Organisation for Animal Health (WOAH), with a focus on surveillance and characterization of novel coronavirus variants.

For DOI, see the Annex.



## Prof Madiha Hashmi

Madiha Hashmi is Professor and Chair of the Department for Critical Care Medicine at Ziauddin University, Karachi, Pakistan. She is also a Visiting Faculty at Aga Khan University, Karachi, Pakistan, Honorary Physician, Mahidol Oxford Research Unit (MORU), Bangkok, Thailand and Secretary, Faculty of Critical Care Medicine at the College of Physicians & Surgeons, Pakistan (CPSP).

Hashmi is a Board Member of the International Severe Acute Respiratory and emerging Infections Consortium (ISARIC) and leads its South Asian Hub in Pakistan. She is a Founding Member Asia Pacific Sepsis Alliance (APSA) and was President of Pakistan Society of Critical Care Medicine from 2015-2019. She co-chairs the Research Prioritization Working Group of the WHO Global Optimization of respiratory support collaboration.

To promote research in critical care in Pakistan, Hashmi founded a trust and is the CEO of Research Education and Critical care Health (REACH) that promotes investigator-led research through the Pakistan Registry of Intensive Care (PRICE), a network of 80 intensive care units across the country in both public and private institutions. She is



Principal Investigator for REMAP-CAP (Randomized Embedded Multifactorial Adaptive Platform for Community-acquired Pneumonia) and operationalised the WHO/ISARIC CCP during COVID Pandemic in intensive care units across the country.

Hashmi has participated in the 2020 Living Guideline on Therapeutics for COVID-19, the 2021 Living Guidance for Clinical Management of COVID-19 and the 2021 WHO Living Guideline for Drugs to prevent COVID-19.

For DOI, see the Annex.



## Dr Marta Lado

Marta Lado is an Internal Medicine and Infectious Diseases specialist, dedicated for the last 11 years to Global health and Public Health emergencies.

Currently Lado is the Director of Clinical programs and Health Policy for Partners in Health (PIH) in Sierra Leone. Over the past years, she has led the design, planning and implementation of health programs including Maternal, Neonatal, Surgical, Non-Communicable Diseases, Mental Health, Surgery, Emergency Medicine, Internal Medicine and Infectious Diseases including HIV, Tuberculosis, Hepatitis B and C, malaria and neglected tropical diseases in low and middle income countries.

She is an expert in Viral Hemorrhagic Fever Diseases after working for the last 10 years in Case Management for WHO against Ebola, Lassa, CCHF and Marburg: e.g. Sierra Leone (2014-2016), Democratic Republic of Congo (2018 2020, 2021 and 2022) Guinea (2021), Uganda (2022-2023, 2024-2025) etc. During 2020-2022, she worked for WHO as a Clinical Expert in the Case Management team based in Geneva, Switzerland, developing guidelines, infrastructure support for health facilities, Oxygen use training and Education materials for clinical management in COVID-19, Ebola, Lassa, Marburg, Arboviruses and Mpox.

Since 2022, apart from her job in PIH Sierra Leone, she continues to collaborate with WHO as a consultant in Health Emergency Preparedness and Response through Case Management and Training/capacity building within the Safe and Scalable care team

For DOI, see the Annex.



## Prof Ziad A. Memish

Ziad Memish is currently a Senior Advisor to the Supervisor General of King Salman Humanitarian Aid & Relief Center (KSrelief) for Medical & Humanitarian Research and a Professor of infectious diseases at the College of Medicine in Alfaisal University, Riyadh, Saudi Arabia.

Memish obtained his MD from the University of Ottawa, Canada and was certified by the American Board of Internal Medicine, the American Board of Infectious Diseases. He also is a Fellow of the Royal College of Physicians (Canada, Edinburgh, and London) and the American College of Physicians, USA.

He received the King Abdulaziz Medal from the first degree, the highest national award, for his achievements in Infectious diseases and infection control in Saudi Arabia, as well as the Minister of Health Award for leadership in research for over 10 years. He further was awarded the "Health Research Excellence: Lifetime achievement award" by Research Development & Innovation Authority and featured as "Highly Cited Researcher" for exceptional research performance by production of multiple highly cited papers (those that rank in the top 1% by citation in the field) by the Web of Science (Clarivate analytics) for seven consecutive years since 2018.

Memish is Editor-in-Chief of five medical journals, presented extensively nationally and internationally and published more than 900 peer reviewed papers and book chapters.

For DOI, see the Annex.



## Dr Ezzuddin A. Okmi

Ezzuddin A. Okmi is an accomplished public health expert with extensive experience in the surveillance and prevention of infectious viral respiratory diseases (IVRDs).

Currently serving as the Executive Director of the TB & IVRDs Surveillance, Prevention, and Control Directorate at the Saudi Public Health Authority in Riyadh, Saudi Arabia, Okmi leads national initiatives to strengthen health policies and enhance surveillance systems.

He holds multiple degrees, including an Executive Master of Business Administration and a Diploma in International Management & Leadership. He is also a board-certified specialist in Community and Preventive Medicine. Since 2021, Dr. Okmi has served as the Head of the MERS-CoV-WHO Collaborating Centre, contributing significantly to global health strategies. A passionate educator, Okmi is also a lecturer and certified trainer for preventive medicine residents, fostering the next generation of public health leaders. His research has led to vital insights into disease prevention and health promotion, resulting in numerous publications in reputable journals. Through dedication and expertise, he continues to drive efforts to combat infectious diseases

in communities and enhance overall public health outcomes.

For DOI, see the Annex.



## Prof Joseph Sriyal Malik Peiris

Peiris is currently Professor of Virology at the School of Public Health at The University of Hong Kong, Hong Kong Special Administrative Region, China. He is a clinical and public health virologist, with an interest in emerging virus disease at the animal-human interface, including influenza and coronaviruses (SARS-CoV, MERS-CoV, SARS-CoV-2).

In 2003, he contributed to identifying the novel coronavirus that caused SARS. He has collaborated with investigators in Saudi Arabia, United Arab Emirates, Kazakhstan, Mongolia, Republic of Korea, Australia and multiple countries in Africa (Ethiopia, Kenya, Morocco, Nigeria, Burkina Faso) to carry out surveillance of MERS-CoV in dromedary camels and humans, some of these studies being in collaboration with WHO and FAO.

Peiris has assisted WHO and FAO in capacity-building for MERS-CoV testing in multiple countries. He has shown that MERS-CoV in Africa forms a distinct genetic clade (clade C) which has a slightly lower replication competence in human respiratory tissues. He has demonstrated evidence of MERS-CoV neutralizing antibody in camel exposed humans in Morocco and demonstrated MERS-CoV specific T cell responses in camel abattoir workers in Nigeria.

Overall, Peiris has published over 900 refereed scientific publications cited over 97,000 times in the literature and of these 54 are on MERS-CoV (cited 2,782 times).

For DOI, see the Annex.



## Dr Nida Qadir

Nida Qadir is an Associate Professor of Medicine at the David Geffen School of Medicine at the University of California, Los Angeles (UCLA), USA and the Co-Director of the Medical Intensive Care Unit (ICU) at Ronald Reagan UCLA Medical Center.

Her current research focuses on acute respiratory distress syndrome (ARDS) and post-intensive care syndrome. She is passionate about evidence-based medicine and works with multiple organizations on the development of clinical practice guidelines in the field of critical care.

Developing pragmatic, evidence-based clinical guidance that can be effectively applied by practicing intensivists is a core part of Qadir's broader academic mission, which is aimed at translating clinical trial results into clinical decision-making in the ICU.

For DOI, see the Annex.



## Dr Sebastián Ugarte Ubiergo

Sebastian Ugarte is a distinguished Chilean senior intensivist, currently serving as the ICU Director at Clínica INDISA and as the Director of the Postgraduate Program in Intensive Care Medicine at Andrés Bello University (UNAB) in Santiago, Chile.

He also leads the Department of Epidemic Response of the Chilean Society of Critical Care and Emergency Medicine.

Holding a medical degree with specializations in Internal Medicine and Critical Care, Ugarte has demonstrated exemplary leadership at both national and international levels. He has served as a council member of the World Federation of Intensive and Critical Care Medicine (WFSICCM) and has been president of multiple critical care societies in Chile and Latin America.

Throughout his esteemed career, he received numerous awards, including the Chilean National Awards for Leadership and Lifetime Achievement in Critical Care, as well as international honors from Brazil, Argentina, Mexico, Cuba, and Colombia.

In 2020, he was named "Chilean of the Year" and recognized as a national hero for his outstanding contributions during the COVID-19 pandemic.

Ugarte has published extensively, authoring over 140 scientific articles and 14 books. He has also made significant contributions to medical education and public health communication throughout Latin America.

For DOI, see the Annex.



## Dr Pragya D. Yadav

Pragya D. Yadav is the Director-in-Charge of the National Institute of One Health, Nagpur, and a Scientist 'F' at the Indian Council of Medical Research-National Institute of Virology (ICMR-NIV), Pune, India, where she leads Asia's first Biosafety Level-4 (BSL-4) laboratory. She obtained a doctorate in virology from Savitribai Phule Pune University, India, in 2004 and subsequently joined ICMR-NIV as a Scientist.

Yadav has made significant contributions to virology, biocontainment science, human and animal virology, health sciences, epidemiology, biomedical sciences, molecular biology, public health, translational research, and preclinical vaccine studies. Her work focuses on highly infectious viral pathogens. She has been instrumental in the discovery of several novel viruses and the rapid investigation of viral outbreaks, including Crimean-Congo hemorrhagic fever, Kyasanur Forest disease, Nipah virus, Zika virus, and mpox.

Yadav has contributed to the development of novel diagnostic assays, technology transfer for commercial production, and the distribution of diagnostic reagents to WHO South-East Asia Region (SEAR) Member States. Her efforts have enhanced public health preparedness for emerging threats such as Ebola, yellow fever, SARS-CoV-2, and mpox in India. During the COVID-19 pandemic, she played a pivotal role in isolating the SARS-CoV-2 virus in India, a key step in enabling Bharat Biotech International Limited to develop the first indigenous COVID-19 vaccine, COVAXIN™. Her team successfully conducted preclinical studies, paving the way for clinical trials, marking a major milestone in Indian science and the history of ICMR.

For DOI, see the Annex.

## Annex

Name	Conflict of interest
<b>Genan Mohammad Albather</b>	No conflict of interest identified.
<b>Fatimah Alshakhs</b>	No conflict of interest identified.
<b>Jaffar A. Al-Tawfiq</b>	He serves as a consultant and technical advisor for the Saudi Public Health Authority (Saudi PHA) and for the Society for Healthcare Epidemiology of America (SHEA) on respiratory infection guidelines
<b>Yaseen Arabi</b>	No conflict of interest identified.
<b>Mamadou Dioulde Balde</b>	No conflict of interest identified.
<b>Bin Cao</b>	No conflict of interest identified.
<b>Allen C. Cheng</b>	No conflict of interest identified.
<b>André Ricardo Araujo da Silva</b>	No conflict of interest identified.
<b>Bart Haagmans</b>	As an employee of Erasmus MC, he is listed as an inventor on a patent related to coronavirus antibodies and MERS-CoV (Patent link: <a href="https://patents.google.com/patent/EP2898067A2/en">https://patents.google.com/patent/EP2898067A2/en</a> ). He has not received any financial benefit from this patent, which is owned by Erasmus MC, and there are no plans to license it.
<b>Madiha Hashmi</b>	She is serving on the Executive Board of International Severe Acute Respiratory and emerging Infections Consortium (ISARIC) of Oxford University and paid 0.4 FTE.
<b>Marta Lado</b>	She continues to collaborate with WHO as a consultant in Health Emergency Preparedness and Response, focusing on Case Management and Training/Capacity Building within the Safe and Scalable Care team
<b>Ziad A. Memish</b>	No conflict of interest identified.
<b>Ezzuddin A. Okmi</b>	He works at the Public Health Authority (KSA), where he leads the WHO-MERS Collaborating Centre as Head of the PHA team.
<b>Joseph Sriyal Malik Peiris</b>	He received ongoing institutional research funding from the National Institutes of Health (NIH), USA; the Health and Medical Research Fund, Government of the Hong Kong SAR; the Research Grants Council, Government of the Hong Kong SAR through The University of Hong Kong (each providing > USD 100,000 annually); and from the Centre for Immunology & Infection (< USD 50,000 annually). He also holds proprietary know-how and patent rights related to a process for sewage surveillance for SARS-CoV-2 and the use of ORF8 for SARS-CoV-2 serology. In addition, he serves as a Board Member and Co-Director, with involvement in translational research through the Innovation and Technology Commission of the Government of Hong Kong SAR and The University of Hong Kong.
<b>Nida Qadir</b>	No conflict of interest identified.
<b>Sebastián Ugarte Ubierno</b>	No conflict of interest identified.
<b>Pragya D. Yadav</b>	No conflict of interest identified.





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