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EDITORIAL

Emerging and Re-emerging Zoonoses are Major and Global Challenges for Public Health

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Zoonotic diseases, or zoonoses, are generally referred to those bacterial, parasitic, viral, and fungal infections that can be transmitted from wild and/or domesticated animals to humans via infected vectors (mosquito, sandfly, tick, etc.) or direct contact [1]. A wide range of emerging and re-emerging infectious diseases has become a major threat to human health, approximately 75% of which are zoonoses. Examples of vector-transmitted zoonoses include plague, malaria, dengue, yellow fever, and West Nile [2]. Despite of decades of research and extensive investment, malaria, AIDS, and tuberculosis still cause thousands of deaths worldwide [3].

Zoonoses also affect wild or domestic animals and household pets in the context of human health. One example is the outbreak of bovine spongiform encephalopathy in cattle and its related Creutzfeldt–Jakob disease in humans in the UK and other European countries during last century [4–6]. The subsequent severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) outbreaks and their successful control re-emphasized the need for sharing cutting-edge findings and knowledge from basic, clinical, and field research at the international level [7, 8]. Numerous surveillance systems and control strategies have been implemented under the frameworks of the World Health Organization (WHO) and the World Organization for Animal Health (WOAH) for the prevention and control of infectious diseases, for public awareness of the health risk of zoonoses.

The reconstruction of human and animal public health systems worldwide and the development of modern technologies for pathogen identification and tracking have greatly strengthened the understanding and control of emerging and re-emerging infectious diseases. The examples include, but are not limited to, new serotypes of avian influenza, novel variants of *Bunyaviridae* that causes severe fever with thrombocytopenia syndrome, Ebola viral disease, Zika virus disease, *Streptococcus suis*, *Escherichia coli* O104, and trypanosomiasis, some of which have caused regional epidemic or pandemic [9]. Before 2019, the WHO declared five Public Health of Emergency of International Concerns (PHEIC) as the major public health challenges, including novel H1N1 influenza pandemic (2009), wild-type poliovirus (2014), Ebola virus disease in West Africa (2014), Zika virus disease (2016), and Ebola virus disease in the Democratic Republic of Congo (2019). In late 2019, a new coronavirus [severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)]-associated respiratory infectious disease, coronavirus (COVID-19) emerged [10]; this virus and its mutants have evolved rapidly and spread globally [11, 12]. By the end of June 2021, COVID-19 had caused approximately 180 million infected cases and 3.9 million deaths worldwide [13]. As the 6th PHEIC and the largest pandemic to date, COVID-19 has already caused trillions of dollars of economic losses and completely changed the what is considered normal globally. Despite the availability of vaccines for emergency usage, the COVID-19 pandemic is still far

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from under control, calling for the development of efficient anti-viral drugs, immunological studies of immune memory in infected/vaccinated human subjects, and epidemiological studies of potential reservoir animals.

Zoonoses, an open access journal, has been established to be part of the broader goal of sharing scientific findings and viewpoints, promoting national/international collaborations, and to increase public awareness of the health risks of zoonoses. This journal focuses on emerging and re-emerging zoonoses that are major and global challenges for human and animal health [14]. We welcome scientists and health professionals in basic, clinical, and field research to submit and contribute to *Zoonoses*.

AUTHOR CONTRIBUTIONS

Xiaoping Dong and Lynn Soong conceived and designed this editorial. Xiaoping Dong wrote the first version of the manuscript. Lynn Soong revised and finalized the manuscript. Both authors read and approved the final version of the manuscript.

CONFLICTS OF INTEREST

Xiaoping Dong and Lynn Soong are co-Editors-in-Chief of *Zoonoses*. They were not involved in the peer-review or handling of the manuscript.

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