



Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.e-jmii.com



Perspectives

SARS-CoV-2 and COVID-19

Wang-Huei Sheng^{a,*}, Wen-Chien Ko^b, Yhu-Chering Huang^c,
Po-Ren Hsueh^{a,d}



^a Department of Internal Medicine, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan

^b Department of Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan

^c Division of Pediatric Infectious Diseases, Chang Gung Memorial Hospital at Linkou and Chang Gung University College of Medicine, Taoyuan, Taiwan

^d Department of Laboratory Medicine, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan

Received 30 March 2020; accepted 30 March 2020
Available online 3 April 2020

Since December 2019, an outbreak of a novel coronavirus (2019-nCoV) emerged in Wuhan City, Hubei Province, China. The World Health Organization (WHO) had announced a new name for the new coronavirus disease 2019 (COVID-19) on February 11, 2020 and potential of pandemic outbreak of COVID-19 on March 11, 2020. By March 26, 2020, more than 460,000 confirmed cases and 20,834 confirmed deaths due to COVID-19 had been reported from 173 countries worldwide. In this special issue, the clinical manifestations of COVID-19, infection control measures by hospital setting and government actions were discussed.

In recent two decades, two known zoonotic coronavirus outbreaks, the severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) were associated with severe pneumonia. Lee et al. compared the three coronavirus outbreaks.¹ The already available data suggested that the 2019-nCoV may be less pathogenic than the MERS-CoV and SARS-CoV. However, the rapidly increasing number of COVID-19 cases suggests that this virus might transmit more effectively among humans compared to prior strains of

coronavirus and that mild illness might be quite common in infected individuals. These features confer a high pandemic potential of COVID-19.

Coronavirus infections in humans usually lead to respiratory symptoms, such as nasal stuff, sore throat, cough and fever. Most human coronaviruses are transmitted by the inhalation of or direct contact with virus-containing respiratory secretions or droplets. However, coronaviruses can cause diarrhea and be found in the feces. Hormati et al. reported patients with COVID-19 exhibited various gastrointestinal symptoms, including epigastric pain, constipation, diarrhea, nausea, vomiting, muscle pain, and melena in Iran.² They hypothesized that COVID-19 has a wide spectra of clinical symptoms, and unusual gastrointestinal symptoms may be present. Ma et al. found that near 30% patients with recovery of COVID-19 had viral shedding in their stool but no viral shedding in respiratory specimens, and 75% of these patients were children.³ These findings indicate that gastrointestinal symptoms were not uncommon and children had longer fecal viral shedding than adults.

COVID-19 presents different impacts and challenges to different countries. Chen et al. reported the preventive strategies in hospitals for managing the COVID-19 pandemic in Taiwan.⁴ As this pandemic spreads, access to personal protective equipment (PPE) for health workers is a key

* Corresponding author.

E-mail address: whsheng@ntu.edu.tw (W.-H. Sheng).

concern. The hospitals should set up a core team, which includes the hospital managers, infection control team members, infectious disease experts, and specialists representing the intensive care unit and accident and emergency departments. Yen et al. suggested interruption of COVID-19 transmission by implementing enhanced traffic control bundling, based on the 2003 SARS outbreak in Taiwan.⁵ The successful prevention of the COVID-19 spread could be ensured by protecting the healthcare workers (HCWs) and patients from fomite, contact, and droplet transmissions within hospitals. Such measures could ensure that the viral transmissions are disrupted both within the hospitals and between the hospitals and the community, which could essentially contain and control the community-hospital-community transmission cycle.

The international COVID-19 response has been focused on avoiding a pandemic in its early stages. There have been confirmed COVID-19 cases among travelers to Wuhan and individuals on the cruise ships. Furthermore, several countries, including Singapore, Japan, Thailand, and South Korea, have identified clusters of locally transmitted cases. Many countries have instituted temporary restrictions on travel to China. However, an increasing number of cases with or without travel history to China were confirmed daily. Lau et al. analyzed all the available data of confirmed cases of COVID-19 from January 20, 2020 until February 18, 2020 worldwide.⁶ A significantly lower proportion of COVID-19 cases without travel history to China were reported in countries with lower Healthcare Access and Quality Index (HAQ-Index). The data indicated that the countries with lower HAQ-index might have under-reported COVID-19 cases, which could lead to new local epicenters of the disease.

Taiwan Centers for Disease Control (Taiwan CDC) organized and held the first meeting of the Expert Advisory Committee of COVID-19 and activated the emergency plan on January 5, 2020, to prepare to combat COVID-19.⁷ The actions of Taiwan's emergency epidemic response plan developed after the 2003 SARS outbreak. The reporting criteria of COVID-19 in Taiwan included clinical criteria, epidemiologic criteria, and laboratory criteria. With the evolving reporting criteria, the designated hospitals could maintain high quality of medical care under an optimal loading and work efficiently to identify the potential cases of COVID-19. Furthermore, the officials integrated Taiwan's

national health insurance database with its immigration and customs database. This enabled the government, hospitals, clinics and pharmacies to track the 14-day travel histories for each patient.⁸

The COVID-19 pandemic outbreak still continues to pose challenges. The presence of asymptomatic or mild 2019-nCoV infections facilitates rapid spreading of the virus, and the preventive efficacy of present efforts for containment should be continuously evaluated. Although clinical trials for new treatments are underway, development of effective vaccines and antiviral agents against this virus is urgently needed.

References

1. Lee PI, Hsueh PR. Emerging threats from zoonotic coronaviruses—from SARS and MERS to 2019-nCoV. *J Microbiol Immunol Infect* 2020;53:365–7. <https://doi.org/10.1016/j.jmii.2020.02.001>.
2. Hormati A, Shahhamzeh A, Afifian M, Khodadust F, Ahmadpour S. Can COVID-19 present unusual GI symptoms? *J Microbiol Immunol Infect* 2020;53:384–5. <https://doi.org/10.1016/j.jmii.2020.03.020>.
3. Ma X, Su L, Zhang Y, Zhang X, Gai Z, Zhang Z. Do children need a longer time to shed SARS-CoV-2 in stool than adults? *J Microbiol Immunol Infect* 2020;53:373–6. <https://doi.org/10.1016/j.jmii.2020.03.010>.
4. Chen TC, Yang CJ, Kuo SH, Liu TY, Chiu CF, Chen YH. The preventive strategies of community hospital in the battle of fighting pandemic COVID-19 in Taiwan. *J Microbiol Immunol Infect* 2020;53:381–3. <https://doi.org/10.1016/j.jmii.2020.03.019>.
5. Yen MY, Schwartz J, Chen SY, King CC, Yang GY, Hsueh PR. Interrupting COVID-19 transmission by implementing enhanced traffic control bundling: implications for global prevention and control efforts. *J Microbiol Immunol Infect* 2020;53:377–80. <https://doi.org/10.1016/j.jmii.2020.03.011>.
6. Lau H, Khosrawipour V, Kocbach P, Mikolajczyk A, Ichii H, Schubert J, et al. Internationally lost COVID-19 cases. *J Microbiol Immunol Infect* 2020;53:454–8. <https://doi.org/10.1016/j.jmii.2020.03.013>.
7. Huang YC, Lee PI, Hsueh PR. Evolving reporting criteria of COVID-19 in Taiwan during the epidemic. *J Microbiol Immunol Infect* 2020;53:413–8. <https://doi.org/10.1016/j.jmii.2020.03.014>.
8. Wang CJ, Ng CY, Brook RH. Response to COVID-19 in Taiwan: big data analytics, new technology, and proactive testing. *JAMA* 2020 Mar 3. <https://doi.org/10.1001/jama.2020.3151>.