



COMMENTARY

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Evaluation of COVID-19 Outbreak on Influenza Virus

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Description

The Wuhan Municipal Health Commission reported an increase in pneumonia cases on December 31, 2019. On January 7, 2020, a new coronavirus later called SARS-CoV-2 was identified as the cause of the cluster. The United States (USA) reported its first case on 20 January 2020. The World Health Organization named the disease Coronavirus Disease 2019 (COVID-19) and characterized it as a pandemic in March 2020. COVID-19 is the first pandemic known to be caused by a coronavirus. It spreads rapidly around the world, causing great health and socioeconomic damage due to its clinical severity and ease of transmission. With no readily available effective medicines against the emerging virus, countries have implemented Non-Pharmaceutical Interventions (NPIs) to contain or slow transmission of SARS-CoV-2. These measures include social distancing and personal movement restrictions (e.g., suspension of large gatherings, closure of public entertainment venues, closure of schools, restrictions on domestic and international travel, issuing a stay-at-home order). Use of personal protective equipment (e.g., wearing masks, good hand hygiene practices, respiratory etiquette); social mobilization (outreach, education, risk communication, etc.). People may have adopted a more hygienic lifestyle to avoid contracting COVID-19.

Wuhan City was “locked down” on January 23, 2020 by severely restricting inbound and outbound traffic. Soon after, all provinces in mainland China launched first (highest) level emergency response measures and adopted stringent NPIs. Specifically, traffic restrictions between cities, wearing face masks, and issuing stay-at-home orders. The COVID-19 epidemic is under control, and the NPI alone has halted ongoing localized SARS-CoV-2 transmission in mainland China by April 2020. In the United States, following the declaration of a national emergency issued on March

13, 2020, the state government deployed his NPI to reduce her COVID-19 transmission. As of April 1, his four metropolitan areas in the United States (Seattle, San Francisco, New York City, and New Orleans) saw a significant increase in the number of new COVID-19 cases after implementing COVID-19 containment measures. A decrease has been recorded.

Influenza and his COVID-19 share similar clinical manifestations and routes of transmission. Influenza activity is closely monitored by sensitive laboratory-based surveillance systems in the United States and China. In China and most states in the United States, positive flu test rates declined sharply during the winter and spring of 2019-2020. For example, the proportion of positive influenza tests in U.S. respiratory specimens increased from over 20 from January 20, 2020 to March 13, 2020, to 2.3% in the week of March 22, 2020. And then interseasonal levels remained at historically low levels. April 5th. In contrast, influenza activity remained at moderate or high levels during the same epidemic week of the eight in-fluenza seasons from 2011 to 2019.

NPI-based prevention and control of COVID-19 provided an opportunity to observe the actual effectiveness of her NPIs in suppressing seasonal influenza virus transmission using a comparative study design. Preliminary studies have reported that COVID-19 NPIs may have suppressed the spread of influenza virus, but the evidence comes primarily from observational modeling studies. Comparative studies of the impact of COVID-19 outbreaks and interventions on the intensity of influenza activity are needed to advance our current understanding.

In our study, we extracted national sentinel surveillance data for Influenza-like Illness (ILI) in 31 provinces of mainland China from 2011 to 2020 and virologic test results of respiratory samples. We also used publicly available data on influenza test results

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from the US centers for Disease Control and Prevention (CDC). To quantify the impact of the COVID-19 NPI on influenza, we constructed a time-series model fitted to historical influenza data and compared the observed influenza activity over the 2019–2020 season to the counterfactual his COVID-19 Influenza ep-

idemic levels were compared to those predicted in a scenario without and his related NPI. The results of this study advance our understanding of the efficacy of COVID-19 NPIs in mitigating other respiratory diseases and provide clues for tailored control strategies for future epidemics or influenza pandemics.