Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Correspondence

Mandatory mask-wearing policy and universal anti-viral treatment mitigate influenza outbreaks during the COVID-19 pandemic

KEYWORDS
Influenza;
COVID-19;
Face mask;
Antiviral agent

Dear editor,

We read with great interest the article by Hsih et al. who reported their experiences in screening symptomatic patients during flu season during COVID-19 epidemic in central Taiwan.[1] Hsih et al. identified two Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2) infection and 4 influenza virus infection among the admitted patients. Their findings highlight SARS-CoV-2 and influenza virus circulated in Taiwan in the early pandemic COVID-19. However, endemic influenza outbreak did not occur as expected due to implementation an array of preventive measures aimed for COVID-19.

Herein, we analyzed the national data of critical/severe influenza diseases from Taiwan Center for Disease Control (CDC) and local data in an university-affiliated hospital in southern Taiwan, and we showed that the decreased trend in influenza was significantly correlated with the timing of implementing the preventive measures to COVID-19, including universal administration of antiviral drug for influenza-like illness and mandatory mask-wearing policy. Number of confirmed cases of critical/severe influenza diseases in Taiwan significantly decreased between February and May 2020, as compared to the same period in 2019 (67 cases in 2020 *vs*.639 cases in 2019; $P = 0.03$ by paired t-test).[2] Since February, 2020, the number of influenza testing (mainly by rapid antigen test or reverse-transcription polymerase chain reaction) in the National Cheng Kung University Hospital has decreased from 2318 tests in Feb. 2019 to 1826 tests in Feb. 2020 (Fig. 1B). Real-time reverse-transcription polymerase chain reaction (RT-PCR) testing for SARS-CoV-2 initiated since Jan. 24, 2020 and the testing number increased rapidly to a peak of 146 tests on Apr. 16, 2020. Anti-influenza prescription increased 2.65 times between February and May 2020, as compared to the same period in 2019. Between Jan. 2019 and Apr. 2020, single change-point was identified in Mar. 2020 for both positive rates of influenza virus test and the prevalence of critical influenza cases using change-point analysis by R 4.0.2 (https://www.r-project.org/). The positive test rate of influenza (0% *vs*. 0.3%) and the prevalence of critical influenza (6.5% *vs*. 7.1%) declined since Mar. 2020, as compared to the same period in 2019 (Fig. 1C).

Strict infection control measures for COVID-19 were adopted in Taiwan after outbreak of pandemic COVID-19.[3] Of note, guaranteed regular supply of face mask and mandatory mask-wearing policy along with rationing plans might mitigate the transmission of influenza virus and SARS-CoV-2, since two viruses shared similar transmission routes.[4] In addition, the decreased prevalence of critical influenza was correlated with the time between Jan. 24 and Mar. 31, when the nationwide plan of antiviral drugs for influenza (such as oseltamivir) at public expense for

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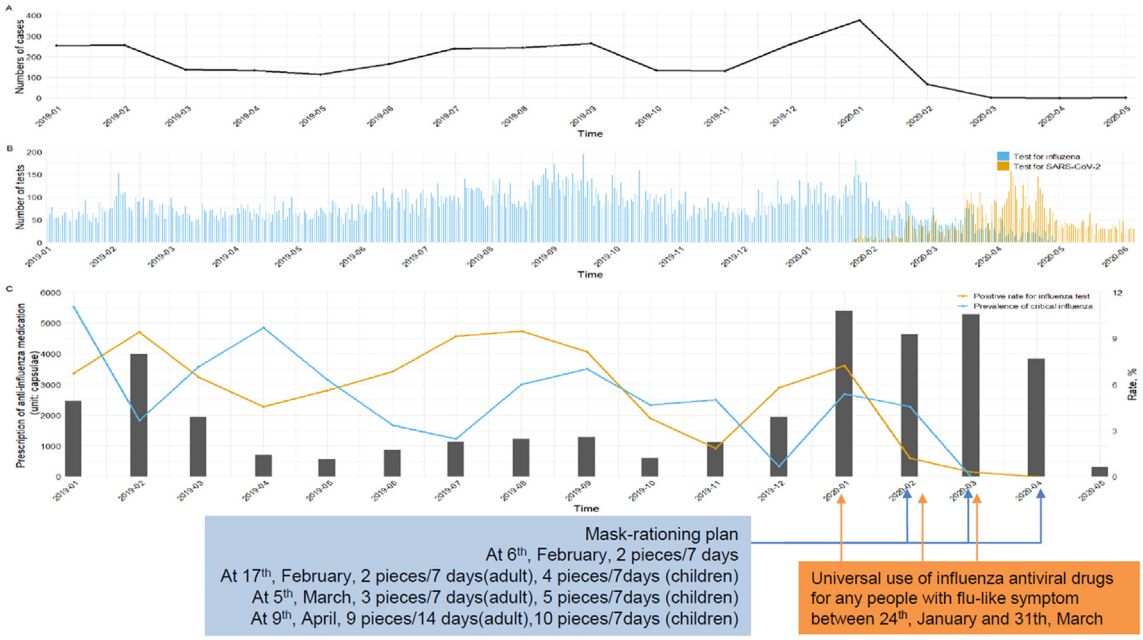

Figure 1. Tests for influenza virus, SARS-CoV-2, and prescription of anti-influenza agents. The number of confirmed severe complicated influenza in Taiwan from January 2019 to May 2020 (A). The tests for influenza virus decreased, as the tests for SARS-CoV-2 increased from January 2019 to June 2020 (B). As anti-influenza agents was widely prescribed and mask-rationing plans initiated since January 2020, the positive rate for influenza tests and the prevalence of critical cases due to influenza dramatically declined (C).

any individual with flu-like symptoms was implemented. Owing to indistinguishable symptoms and signs of influenza and COVID-19,[5] the use of anti-influenza drugs help to identify influenza cases with good response to antiviral treatment. Although the liberal use of antiviral drugs for influenza in endemic periods has been debating, this measure may reduce the spread of influenza virus in the community, and preserve healthcare resources for severe COVID-19 cases.

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Declaration of competing interest

No potential conflict of interest was reported by the authors.

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