

Between the start of the SARS-CoV-2 outbreak in Reggio Emilia at the end of February and March 24, the province has had 460 hospitalizations in all hospitals. Among these, 2 (0.4%) patients (1,2) had acute ischemic events involving abdominal viscera; therefore, these events should not be considered too rare. Visceral infarction is probably a clinical manifestation of the prothrombotic state that has been described in patients with COVID-19 (1–6). Consistently, reports about pathological changes in organs other than the lungs describe parenchymal cells necrosis and small-vessel thrombosis (7).

The possibility of abdominal visceral infarction during COVID-19 has major implications in clinical practice. First, when patients with COVID-19 report severe abdominal pain, visceral infarction should be considered in differential diagnosis and taken into account in laboratory and imaging diagnostic work-ups. Second, this finding should further prompt the scientific community to stress the need to routinely use LMWH in patients with COVID-19 and to open the debate on the appropriate dosage. Finally, the prothrombotic state in patients with COVID-19 may justify therapeutic rather than prophylactic LMWH.

Acknowledgment

We thank Jacqueline Costa for English language editing.

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References

1. Klok FA, Kruij MJHA, van der Meer NJM, Arbous MS, Gommers DAMPJ, Kant KM, et al. Incidence of thrombotic complications in critically ill ICU patients with COVID-19. *Thromb Res.* 2020 Apr 10 [Epub ahead of print]. <https://doi.org/10.1016/j.thromres.2020.04.013>
2. Griffin DO, Jensen A, Khan M, Chin J, Chin K, Saad J, et al. Pulmonary embolism and increased levels of d-dimer in patients with coronavirus disease. *Emerg Infect Dis.* 2020 Apr 29 [Epub ahead of print]. <https://doi.org/10.3201/eid2608.201477>
3. Khodamoradi Z, Boogar SS, Shirazi F, Kouhi P. COVID-19 and acute postpartum pulmonary embolism. *Emerg Infect Dis.* In press 2020.
4. Helms J, Tacquard C, Severac F, Leonard-Lorant I, Ohana M, Delabranche X, et al.; CRICS TRIGGERSEP Group (Clinical Research in Intensive Care and Sepsis Trial Group for Global Evaluation and Research in Sepsis). High risk of thrombosis in patients with severe SARS-CoV-2 infection: a multicenter prospective cohort study. *Intensive Care Med.* 2020 May 4 [Epub ahead of print]. <https://doi.org/10.1007/s00134-020-06062-x>
5. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.* 2020;395:497–506. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5)
6. Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet.* 2020;395:1054–62. [https://doi.org/10.1016/S0140-6736\(20\)30566-3](https://doi.org/10.1016/S0140-6736(20)30566-3)
7. Yao XH, Li TY, He ZC, Ping YF, Liu HW, Yu SC, et al. A pathological report of three COVID-19 cases by minimally invasive autopsies [in Chinese]. *Zhonghua Bing Li Xue Za Zhi.* 2020;49:E009.

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Collateral Benefit of COVID-19 Control Measures on Influenza Activity, Taiwan

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DOI: <https://doi.org/10.3201/eid2608.201192>

Taiwan has strictly followed infection control measures to prevent spread of coronavirus disease. Meanwhile, nationwide surveillance data revealed drastic decreases in influenza diagnoses in outpatient departments, positivity rates of clinical specimens, and confirmed severe cases during the first 12 weeks of 2020 compared with the same period of 2019.

After the 2003 severe acute respiratory syndrome coronavirus epidemic, the government and public of Taiwan have been vigilant about the threat of emerging infectious diseases. The government of Taiwan took swift action to prevent coronavirus disease (COVID-19) importation and outbreaks (1). The public

has adhered well to control measures that included avoiding gatherings, maintaining social distance, mask wearing, hand and respiratory hygiene, temperature monitoring, and quarantine of high-risk and sick persons (Figure 1, panel A). Although the success of these measures for limiting COVID-19 transmission remains to be determined, nationwide surveillance has shown the rapid decline of influenza activity during the first 12 weeks of 2020 (through March 21) in Taiwan.

The Taiwan National Infectious Disease Statistics System (2), maintained by the Taiwan Centers for Disease Control, is an open data portal that provides nationwide surveillance data on infectious diseases (<https://nidss.cdc.gov.tw>). For this study, we analyzed data from outpatient department visits for selected syndromes, clinical specimen testing, isolated respiratory pathogens, and confirmed severe cases (Appendix,

<https://wwwnc.cdc.gov/EID/article/26/8/20-1192-App1.pdf>). The institutional review board of the National Health Research Institutes approved this study (EC1051207-R4).

We compared changes across the first 12 weeks of 2020 with data from the same period of 2019 using simple linear regression. (The 9-day Lunar New Year holiday in week 6 of 2019, when most healthcare service was unavailable, resulted in extreme data; therefore, we excluded these data from analysis.) We saw fewer outpatient department visits for influenza-like illness (ILI) and ILI diagnoses per 1,000 visits during weeks 8–12 of 2020 compared with 2019 (Figure, panel A). The changes (slopes of the regression lines) of ILI visits (-8,061 vs. -590 per week; $p < 0.05$) differed between 2020 and 2019, as did the changes in ILI diagnoses per 1,000 visits (-1.5 vs. -0.2 per week; $p < 0.05$). The slopes of the regression lines

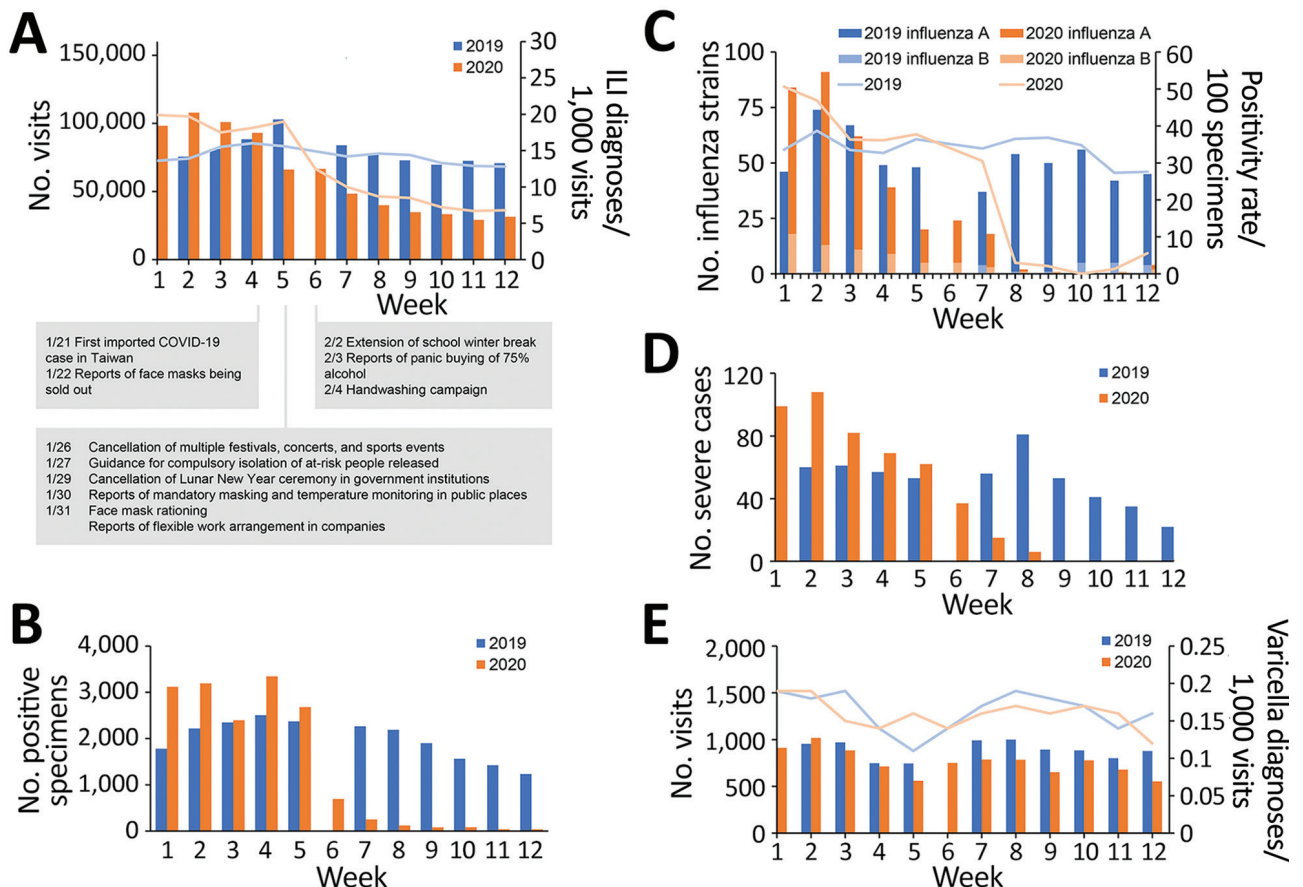


Figure. Influenza and varicella activity in Taiwan during the first 12 weeks of 2020 compared with the corresponding time period in 2019. A) Number of outpatient department visits in which the diagnosis of influenza-like illness (ILI) was made (bars) and the rate of ILI diagnoses per 1,000 visits (lines). Notable dates during the coronavirus disease pandemic are marked along the baseline. B) Number of specimens positive for influenza. C) Number of strains of influenza identified in commissioned laboratories (bars) and the number of positive specimens/total specimens positivity rate (lines). D) Number of laboratory-confirmed influenza cases with severe complications. E) Number of outpatient department visits in which the diagnosis of varicella infection was made (bars) and the rate of varicella diagnoses per 1,000 visits (lines). The 9-day Lunar New Year holiday in week 6 of 2019, when most healthcare service was unavailable, resulted in extreme data, which we excluded from the analysis.

for positive samples (-360 vs. -77 per week; $p < 0.05$) also differed between 2020 and 2019 (Figure 1, panel B). Both the number of influenza strains isolated from clinical specimens in commissioned laboratories and the positivity rate dropped drastically in 2020; the trends were different from 2019 ($p < 0.05$ for both) (Figure 1, panel C). The number of cases of confirmed influenza with severe complications decreased from 99 to 1 in 2020, compared with a decrease from 44 to 22 in 2019 ($p < 0.05$) (Figure 1, panel D). In contrast, the number of outpatient department visits for varicella and the number of varicella diagnoses per 1,000 visits remained similar in 2020 and 2019 ($p = 0.660$ for outpatient department visits and $p = 0.157$ for varicella diagnosis) (Figure 1, panel E).

The functional healthcare and surveillance systems in Taiwan, the government's efforts to identify causes of ILI during the COVID-19 pandemic, and sufficient laboratory capacity ensure appropriate influenza testing and reporting of results. Healthcare avoidance during COVID-19 pandemic may be an important confounder for the results we reported. However, because of awareness of the similarities in symptoms between COVID-19 and influenza and the low number of COVID-19 patients in Taiwan (<200 cases as of March 21, 2020), patients with ILI would not avoid seeking medical help for a diagnosis. Healthcare avoidance also did not explain the lower number of severe influenza cases observed in 2020 (Figure 1, panel D). Therefore, we believe that the decreasing influenza activity in Taiwan in 2020 is the result of strict control measures that were established in response to COVID-19.

Acknowledgments

We thank the Taiwan Centers for Disease Control for making their data publicly available and I-Shou Chang for his comments regarding statistical methods.

This project was supported by an intramural grant from the National Health Research Institutes (IV-109-PP-01 and PH-109-GP-02).

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References

1. Wang CJ, Ng CY, Brook RH. Response to COVID-19 in Taiwan: big data analytics, new technology, and proactive testing. *JAMA*. 2020;323:1341. <https://doi.org/10.1001/jama.2020.3151>

2. Jian SW, Chen CM, Lee CY, Liu DP. Real-time surveillance of infectious diseases: Taiwan's experience. *Health Secur*. 2017;15:144-53. <https://doi.org/10.1089/hs.2016.0107>

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Asymptomatic SARS-CoV-2 Infection in Household Contacts of a Healthcare Provider, Wuhan, China

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DOI: <https://doi.org/10.3201/eid2608.201016>

We found that all 5 asymptomatic household contacts of a Wuhan, China, physician with coronavirus disease had severe acute respiratory syndrome coronavirus 2 detected by PCR. The index patient and 2 contacts also had abnormal chest computed tomography scans. Asymptomatic infected household contacts of healthcare workers with coronavirus disease might be underrecognized.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the cause of the coronavirus disease (COVID-19) pandemic, is highly contagious and can put families of healthcare professionals at risk for both symptomatic COVID-19 and asymptomatic

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Appendix

Methods

We used 4 datasets from Taiwan National Infectious Disease Statistics System (TNIDSS) in this study. These datasets provided (1) the number of outpatient department (OPD) visits for selected syndromes and the number of all OPD visits; (2) the number of clinical specimens that tested positive for influenza; (3) the number of specimens sent to commission laboratories and the species of respiratory pathogens isolated; and (4) the number of severe complicated cases with confirmed influenza.

Aggregated data regarding OPD visits (the first dataset) are from the National Health Insurance of Taiwan. International Classification of Diseases (ICD-9-CM/ICD-10) codes were used to identify influenza-like illness and varicella. Data on specimens positive for influenza (the second dataset) were obtained from >50 clinical laboratories. Some of the specimens were sent to 8 commissioned laboratories for virus culture and species identification; experimental results (the third dataset) were then submitted to TNIDSS. Reporting of cases of suspected influenza with severe complications is mandatory; they were reported to Taiwan Centers for Disease Control and specimens were sent to the CDC laboratory for confirmation (the fourth dataset).