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Short Communication

# Prompt successful response to a COVID-19 outbreak: Performance of community-based rapid screening station

Chia-Jen Liu <sup>a,b,c</sup>, Chun-Yi Yang <sup>b,d</sup>, Yi-Long Chen <sup>e,f</sup>,  
Samuel Shih-Chih Wang <sup>b</sup>, Chao-Mei Chu <sup>g,h</sup>,  
Ming-Hsuan Hsieh <sup>i,j</sup>, Sheng-Jean Huang <sup>a</sup>, Yu-Ping Chang <sup>j,k</sup>,  
Chia-Chen Hsu <sup>l,m,n,\*</sup>

<sup>a</sup> Superintendent Office, Taipei City Hospital, Taipei, 10341, Taiwan

<sup>b</sup> Department of Health and Welfare, University of Taipei, Taipei, 11036, Taiwan

<sup>c</sup> Center for General Education, University of Marine Technology, Taipei, 11174, Taiwan

<sup>d</sup> Department of Social Work, Taipei City Hospital, Taipei, 10341, Taiwan

<sup>e</sup> Deputy Superintendent Office, Taipei City Hospital, ZhongXing Branch, Taipei, 10341, Taiwan

<sup>f</sup> Department of Health Care Management, National Taipei University of Nursing and Health Science, Taipei, 112303, Taiwan

<sup>g</sup> Department of Medical Affairs, Taipei City Hospital, Taipei, 10341, Taiwan

<sup>h</sup> Department of Information Management, National Taipei University of Nursing and Health Sciences, Taipei, 112303, Taiwan

<sup>i</sup> Development and Planning Center, Taipei City Hospital, Taipei, 10341, Taiwan

<sup>j</sup> University of Taipei, Taipei, 111036, Taiwan

<sup>k</sup> Deputy Superintendent Office, Taipei City Hospital, Taipei, 10341, Taiwan

<sup>l</sup> Department of Otorhinolaryngology, Taipei City Hospital, Taipei, 10341, Taiwan

<sup>m</sup> Graduate Institute of Gerontology and Health Care Management, Chang Gung University of Science and Technology, Taoyuan, 33303, Taiwan

<sup>n</sup> Department of Exercise and Health Sciences, University of Taipei, Taipei, 111036, Taiwan

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An outbreak occurred in Wanhua District of Taipei City. It was traced to a cluster infection originating from a teahouse. To prevent further large-scaled community spread, the Taipei City Government established the first community rapid test screening station. This report describes the station's strategy and performance and key factors that contributed to its operation. The project involves collaboration among various departments of Taipei City Government, including the health, environmental, police, transportation, and fire departments. The station

\* Corresponding author. Department of Otorhinolaryngology, Taipei City Hospital, Taipei, Taiwan. Fax: +886 2 2302 7411.  
E-mail address: [DAZ10@tpech.gov.tw](mailto:DAZ10@tpech.gov.tw) (C.-C. Hsu).

Polymerase chain reaction test;  
Hot spot

provides rapid screening, polymerase chain reaction (PCR) testing, and immediate isolation and follow-up medical services upon the detection of a positive case. These services are accessible to local residents and are intended to ease hospitals' burdens. In 36 days, a total of 8532 people were tested, and 419 confirmed cases were identified. Over the same period, the weekly number of positive cases in Wanhua District decreased from 356 to 40, and the PCR positive rate decreased from 21.7% to 1.2%. The policy of establishing rapid screening station, contact tracing and mask wearing policy are key strategies for interrupting chains of transmission of COVID-19. This intervention has become a model for preventing the spread of the epidemic and establishing community rapid screening stations in Taiwan.

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## Introduction

The COVID-19 epidemic had been effectively controlled in Taiwan until the emergence of clusters in teahouses in Taipei's Wanhua District in May 2021, which led to a massive outbreak. In Taiwan, teahouses, known as "*A-gong diam*" in Taiwanese, are primary settings for sex work. Some teahouses hire foreign women to work as hostesses or provide sexual services. Teahouses are often dim and poorly ventilated; moreover, interpersonal interactions, made in the absence of mask wearing, violates the epidemic prevention protocol. Upon the emergence of the clusters, patrons were ashamed of having visited these establishments and teahouse employees were hesitant to undergo COVID-19 screening. These factors contributed to the subsequent COVID-19 outbreak.

The rapid screening station is situated near the teahouses on the Bopiliao Historic Block, which has more than 200 years of history and was designated a historic district by the Taipei City Government in March 2010. Because of the sudden outbreak, a large number of people in this district required screening. The station increased accessibility to COVID-19 testing for local residents; furthermore, it mitigated hospital overflow, which can increase the probability of infection.

## Strategy

As COVID-19 has spread worldwide, each country has adopted various preventative strategies, such as social distancing, quarantines, lockdowns, curfews, travel prohibitions, and screenings. In Taiwan, compliance of wearing mask plays an important role to prevent spread of the virus.<sup>1</sup> Wuhan, China conducted a large number of SARS-CoV-2 nucleic acid screenings from May 14 to June 1, 2020.<sup>2,4,6</sup> To prevent large-scale community spread, the Taipei City Government quickly established the first rapid screening station in Wanhua District, at the recommendation of the Central Epidemic Command Center on May 14. This report describes the strategy, performance, and important factors of a community screening station. The station provides rapid screening and polymerase chain reaction (PCR) tests. Those who test positive in the rapid screening test are isolated before their PCR test results are examined. Thus can detect the infected persons at the early possible time. Specifically, Taiwan had no prior

experience with such a station, and the Bopiliao area features several historical buildings for which no hardware modifications could be made. The station was established as an out-of-community site and has enlisted assistance from outside the medical system. The civil administration system assists with community care and encourages residents to be screened such that cases can be detected as soon as possible. The police department deploys police officers to assist with site maintenance and traffic control. The Environmental Protection Administration assists with sanitation and garbage removal. The Health Bureau and Health Service Center assist in determining the location of quarantine and investigating confirmed cases. The Public Transport Department assists in transferring those who test positive to quarantine. The municipal media affairs team assists in issuing press releases. The military's chemical soldiers assist with site disinfection.

Each individual undergoes a body temperature check, a physical examination, identity registration, a test, and a rapid screening test.<sup>3,8,9</sup> The results are announced after approximately 20 min. Those who test positive are transferred to a quarantine hotel by bus, but those who need medical care are transferred to a hospital. The screening station waiting area can accommodate 30 people at a time, with the capacity adjusted to screen 30 people per hour to avoid complaints caused by long waiting times. Because of a lack of medical equipment, the site does not provide screening for individuals who are aged younger than 18 years, have a fever, are in wheelchairs, or are receiving dialysis or chemotherapy.<sup>4</sup> Positive cases on this site are managed by 1. providing a temporary quarantine area; 2. explaining the quarantine policy and organizing appropriate quarantine facilities; 3. arranging transportation to transfer individuals to hotels for quarantine; and 4. providing social and psychological care. Contact tracing was followed, it is an important public health practice to identify everyone who had been exposed to Covid-19.<sup>10</sup>

## Performance of community-based rapid screening station

Over 36 days, a total of 8532 people were tested, and 419 positive cases were identified. The daily screening volume was 230 people on average and peaked at 450 people.

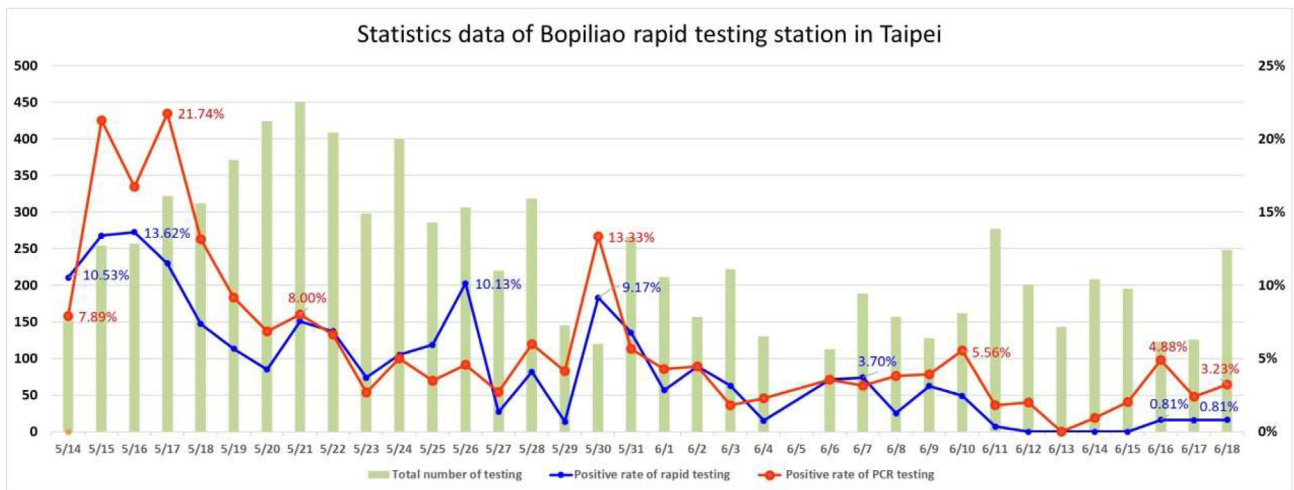


Figure 1 Statistics of the rapid screening station in Bopiliao, Wanhua District, Taipei.

Because the station was established quickly, the prevalence of COVID-19 in Wanhua District, as well as the number of confirmed cases, decreased over a short period of time. The weekly number of cases decreased from 356 from May 9–15 to 40 from June 13–19.<sup>5</sup> The initial highest positive rate in the rapid screening was 14.1%. The PCR positive rate decreased from 21.7% to 1.2% over 36 days. According to the COVID-19 Dashboard,<sup>5</sup> Wanhua District had the highest number of new confirmed cases among 12 administrative districts of Taipei from May 14 to June 18, and the highest number of new cases in a single day was 170, 67% of the positive cases in Taipei City. By June 18, the number of confirmed cases was fewer than 20 (Fig. 1). Wanhua District no longer had the highest number of confirmed cases among Taipei's 12 administrative districts, and the proportion of cases originating in Wanhua exhibited the greatest reduction.

Rapid screening stations in hospitals are relatively safe and offer protection and support for medical personnel. However, the Bopiliao rapid screening station was established in a community hot spot.<sup>7,9</sup> No medical or general personnel were infected during the establishment process. The key factor in the rapid screening station's operation is the method used for managing positive cases. When a cluster of cases is identified, fear of infection results in an influx of people. Providing a temporary quarantine facility for positive cases of a suitable size and with a clear transfer policy is therefore required. The transfer policy should include one single contact pat hand rapid transfer, the organization of quarantine locations (hospitals, epidemic prevention hotels), and timely social and psychological support. These factors are all crucial to the rapid screening station's operation.

## Conclusion

The Bopiliao site is the first community-based rapid screening station in Taiwan. It was established in the area with the highest prevalence of COVID-19 to target asymptomatic individuals who had a history of contact

with confirmed cases.<sup>8</sup> The station accelerated the testing process and the containment of infection; moreover, integrated the policy of public mask wearing and contact-tracing system that have been are effective at reducing spread of the virus.

The station has become a model for epidemic prevention and serves as a reference for the rapid establishment of community screening stations for the Taiwanese government.

## Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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