

## Editorial



# Fast Screening Systems for COVID-19

Sungmin Kym

Division of Infectious Diseases, Department of Internal Medicine, Sejong Chungnam National University Hospital, Sejong, Korea

## OPEN ACCESS

### Address for Correspondence:

Sungmin Kym, MD, PhD

Division of Infectious Diseases, Department of Internal Medicine, Sejong Chungnam National University Hospital, 20 Bodeum 7-ro, Sejong 30099, Republic of Korea.  
E-mail: smkimkor@gmail.com

© 2020 The Korean Academy of Medical Sciences.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ORCID iD

Sungmin Kym   
<https://orcid.org/0000-0003-3518-966X>

### Disclosure

The author has no potential conflicts of interest to disclose.

► See the article “Walk-Through Screening Center for COVID-19: an Accessible and Efficient Screening System in a Pandemic Situation” in volume 35, number 15, e154.

Cases of coronavirus disease 2019 (COVID-19) infection are increasing steeply around the globe. Accordingly, there is a huge need and responsibility for respiratory specimen collection pertaining to testing patients with suspected symptoms as well as those who have been in contact with confirmed patients and/or those who have visited risk areas recently. For this reason, several fast methods of sampling respiratory specimens from large numbers of testees are currently being tried.

Drive-through (DT) screening system has already earned great creditability due to its impressive efficiency in saving time, especially in the process of specimen collection. The DT system shortened the time of the entire screening process (registration, questionnaire, examination, specimen collection and instructions) to one-third of the conventional process (30 minutes shortened to 10 minutes per one person).<sup>1</sup> By adopting the DT system, the required healthcare manpower and personal protective equipment (PPE) consumption involved could be minimized also. However, the main limitation of the DT system is that it can only be available to individuals whose mode of transportation is the car.

Walk-through (WT) screening is also being tried out.<sup>2</sup> The advantage of the WT system over the DT system is that it has the same benefits of saving time, manpower, and PPE, but in addition, it is available to people who do not drive. But one main shortcoming of the WT system is the costs required in building negative pressured booths (cost of 2.8 to 3 million Korean won per one WT booth). Safe and effective disinfection of the booth is another issue to be counted.

Another screening system, Globe-Wall (GW) system, would have medical testers be stationed inside the negative pressured booths. The testers would collect respiratory specimens from people who stay outside the booth. This system may have some advantages over others in that it would only require a minimal level of PPE for the testers. But the aforementioned issues of booth construction costs and disinfection still exist in this system.

In spite of several issues remaining unsolved at present, these creative new methods for collecting respiratory specimens for COVID-19 tests have achieved great credibility in terms of time saving. However, it is believed that a couple of the issues still need to be addressed more actively in order to prove the systems' merits.

First, there needs to be greater evaluation of the possibility of COVID-19 patients infecting medical personnel and/or other testees in line with them. So far, there has been no report of a proven case of an individual contracting COVID-19 from participating in the fast screening process. And all daily reports of PCR tests on WT system booths have come out negative even though 2 COVID-19 patients have been detected by the WT test system.<sup>2</sup> However, more properly designed evaluations, such as PCR tests on the booth and PPE for the testers immediately after collection of respiratory specimens from already confirmed patients, and their follow up PCR tests after disinfection, are required.

Second, outdoor setup at well-ventilated spaces need to be considered another option for collecting respiratory specimens via COVID-19 tests. In fact, this method is the recommended alternative for pulmonary tuberculosis or pneumonic plague tests' sputum collection when a negative pressured sputum collection booth is not available.<sup>3,4</sup> The outdoor system of respiratory specimen collection has a clear advantage of saving construction costs of negative pressured booths. But the system may not apply for small open spaces that have no sufficient air circulation.

To conclude, safe and fast ways of collecting respiratory specimens are mandatory in cases of widespread outbreak of transmissible respiratory infections such as the current COVID-19. Although the DT, WT, and GW systems have been tried and are gathering credibility, more thorough evaluations of their safety are warranted. Moreover, the outdoor collection system is believed to have potential as another option for respiratory specimen collection of COVID-19 tests.

## REFERENCES

1. Kwon KT, Ko JH, Shin H, Sung M, Kim JY. Drive-through screening center for COVID-19: a safe and efficient screening system against massive community outbreak. *J Korean Med Sci* 2020;35(11):e123. [PUBMED](#) | [CROSSREF](#)
2. Kim SI, Lee JY. Walk-Through screening center for COVID-19: an accessible and efficient screening system in a pandemic situation. *J Korean Med Sci* 2020;35(15):e154. [CROSSREF](#)
3. Centers for Disease Control and Prevention. Core curriculum on tuberculosis: what the clinician should know; chapter 4 diagnosis of tuberculosis disease. 6th edition. 2013. <https://www.cdc.gov/tb/education/corecurr/pdf/chapter4.pdf>. Updated 2020. Accessed April 11, 2020.
4. World Health Organization. How to safely collect sputum samples from patients suspected to be infected with pneumonic plague. 2016. <https://www.who.int/csr/disease/plague/collecting-sputum-samples.PDF>. Updated 2020. Accessed April 11, 2020.