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Letter to the Editor: How Did We Solve the Risk of Cross-Infection after Testing by the Walk-Through System Pointed Out by Many Authors?

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► 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.

We thank the Editor for giving a chance to introduce our article entitled “Walk-through screening center for COVID-19: an accessible and efficient screening system in a pandemic situation.”¹ In this article, we honestly shared our experience to report the challenges encountered in the development and implementation of the walk-through (WT) screening system and how we have solved them, and to open the door to further discussion on our solutions described. In addition to our article, several authors, including two editors, commented on the advantages and challenges of the WT screening system in the previous issue.²⁻⁴ For these comments, we did not only describe the advantages and the risks of the WT system but also how we ensured the safety of testees. Contrary to our intentions, however, the risks seem to have emerged more in previous editorials and opinion, so we felt the need to re-inform the contents of our article on how to compensate for the risks as described below.

We described that the ventilation rate inside the booth was 100 times per hour, reflecting the maximum air volume of the negative pressure device, the volume of the booth, and the resistance of the high-efficiency particulate air filter. According to the Center for Disease Control and Prevention (CDC) guideline, less than 3 and 5 minutes were required to remove 99% and 99.9% of the particles from the air, respectively.^{5,6} After the testee left the WT booth, we have 5 minutes of ventilation time before starting disinfecting the inside surface of the booth.

We also described that ethanol and sodium hypochlorite were not suitable disinfectants for the WT system. Furthermore, spraying disinfectant was not a suitable method. By reviewing the guidelines of the CDC, World Health Organization, and Korea CDC, we found a safe and effective disinfectant. The disinfectant we found has sufficient germicidal ability against all types of viruses, Gram-positive and Gram-negative bacteria with a contact time of 1 minute. It also has tuberculocidal ability with a contact time of 5 minutes.⁷ According to CDC Guidelines for environmental infection control in health-care facilities, the use of the tuberculocidal surface disinfectant will not prevent the transmission of tuberculosis in healthcare-setting because tuberculosis is not acquired from environmental surfaces. The tuberculocidal claim means which has the capability of inactivation a broad spectrum

of pathogens.⁸ This product is not classified as hazardous according to the Occupational Safety and Health Administration 29CFR 1910.1200 (HazCom 2012-GHS) and Canadian Hazardous Products Regulations (WHMIS 2015-GHS). We described that ventilation time was 5 minutes after surface disinfection to maintain sufficient contact time, and because of the use of multiple booths, approximately 30 minutes of ventilation per booth was achieved. The outer gloves were replaced with each patient after 5 minutes of ventilation to the patient exit. And then, we wiped the inner surface and inner gloves of the booth with a disinfectant simultaneously. The inner gloves were also replaced when an abnormality was found.

Through all of the methods we described, we secured the safety of the walk-through system and confirmed it with the environmental polymerase chain reaction method.

We introduced our WT system as a basic model. There can be more advanced WT systems beyond our system. For example, the ventilation rate can be increased to over 400 times per hour, depending on the performance of the negative pressure device. The ventilation rate of the WT booth currently operated by H Plus Yangji Hospital is 408 times per hour. There could be more disinfectants which are safe as the disinfectant we found. If there is enough space, a WT system utilizing an open space with proper ventilation might be considered.

We believe that the first priority of operating the WT system is patient safety. We suggest that the WT system is one of the efficient and accessible screening systems against COVID-19. Efforts to cope with COVID-19 pandemic are needed by devising ways to increase safety rather than vague fear of the dangers of the WT system.

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