A new protective barrier to reduce the aerosol dispersion in dental clinics during Omicron Covid-19 pandemic

Wei-Chi Teng[a], Ya-Chun Chu[b,c], Jen-Yu Tseng[d,c], Hsien-Yung Lai[a,*]

[a]Department of Anesthesiology, Mennonite Christian Hospital, Hualien, Taiwan, ROC; [b]Department of Anesthesiology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC; [c]National Yang Ming Chiao Tung University, School of Medicine, Taipei, Taiwan, ROC; [d]Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

DEAR EDITOR,

Dental professionals are exposed to very high risks of infection by Covid-19 during clinical work. Because the exposure to saliva, blood, and other body fluids combined with the handling of sharp instruments and procedures all generate aerosols. The use of high-speed handpieces and ultrasonic tips causes more aerosols of saliva particles, blood, and other fluids.[1]

Due to the above characteristics of dental procedures, standard protective equipment in daily clinical work may not be effective enough to prevent the transmission of COVID-19 virus, especially when Omicron virus cause the patients asymptomatic and ignore they are infected.

There are several protection devices been developed for dental clinics includes aerosol box or shield.[2,3] But most of them would hinder the way a lot of procedures that would be not practical for clinical use. Due to our previous rich experiences in protective barrier enclosure innovation[4-6]; thus, we design a new type of protective barrier especially suitable for dental procedures.

A height-adjustable metal bracket with four wheels helps adjust the height of the table to the preference of operators and facilitates moving the transparent tent while necessary (Fig. 1). We use transparent plastic drape covering the metal bracket to form a tent. There are apertures in each side of plastic drape in order for the entrance of the operator and assistants' hands. This time we selected plastic drape but not previous acrylic material is because that in dental clinical procedures, most patients are wide awake, the solid acrylic aerosol box sometimes causes patient discomfort, especially when the patients are claustrophobia. The other benefit of this plastic tent is it is simple in design, easy to assemble, and disposable for one use, do not worry about the cross-contamination problem caused by disinfection.

Although using any sort of barrier in a clinical procedure requires work style adjustment, this dental barrier has been tested and practiced by many dentists clinically, they consider this tent provides good protection for aerosol spread during procedures and interfere the service at an acceptable range. The demonstration of this barrier in clinical practice was provided in the Supplementary Appendix (https://youtu.be/PUThdS9lgZ8?t=5).

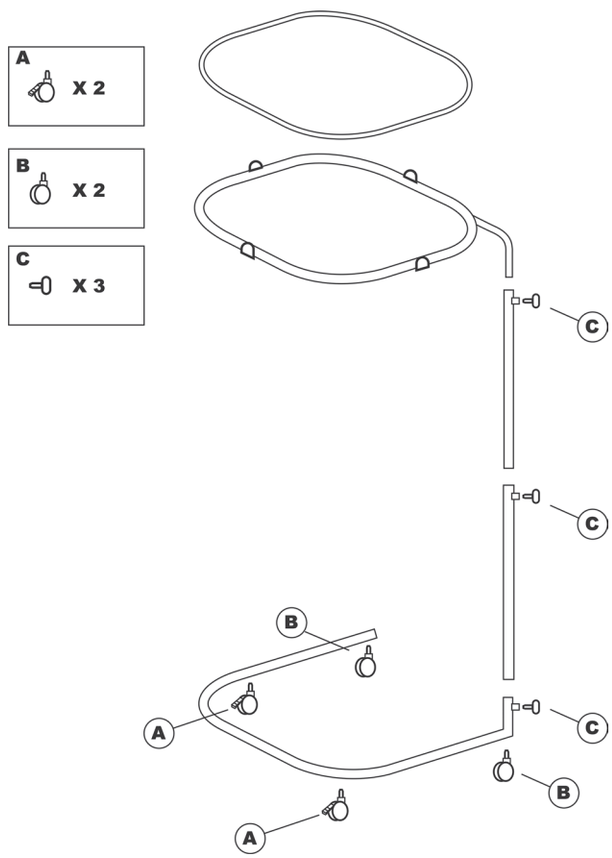

Fig. 1 Specification of the dental barrier, it is assembled easily with height-adjustable metal bracket with four wheels (A, B).

*Address correspondence. Dr. Hsien Yung Lai, Department of Anesthesiology, Christian Mennonite Hospital, 44, Ming-Churn Road, Hualien 970, Taiwan, ROC. E-mail address: hamalai@yahoo.com.tw (H.-Y. Lai).

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Taiwan has seen a spike in Covid-19 cases since April 2022, after its government chose to move away from its zero-tolerance approach to begin living with the coronavirus. The Covid-19 pandemic is not likely going to disappear and can potentially become a seasonal or endemic foe. Furthermore, infected asymptomatic and mildly symptomatic still confer a high risk of transmission. The first-line healthcare workers face strong impact of medical overload and more and more infective risks of dental doctors and assistants during their routine services. We hope this special designed barrier for dental clinics could provide extra protection during this pandemic.

APPENDIX A. SUPPLEMENTARY DATA

Supplementary data related to this article can be found at https://youtu.be/PUThdS9lgZ8?t=5.

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