

Use of portable partitions with high-efficiency particulate air filters in the endoscopy unit ▶

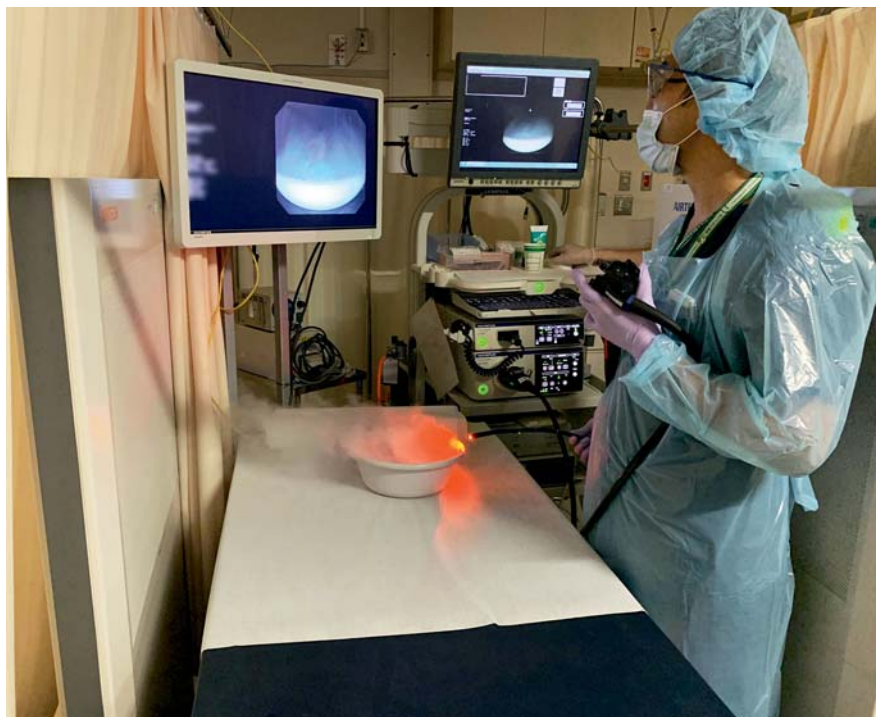


Upper gastrointestinal endoscopy is one of the procedures with a high risk for spreading SARS-CoV-2 because the virus infects via aerosol transmission [1]. When Endoscopic procedures performed on patients infected with SARS-CoV-2 should be conducted in a negative-pressure room [2, 3]. Testing of SARS-CoV-2-positive patients may be routine because they are asymptomatic and a significant number of these individuals also exhibit gastrointestinal symptoms [2]. Several strategies have been suggested to reduce the risk of transmitting the infection during gastrointestinal endoscopy [4].

We have placed in our endoscopy units portable partitions with high-efficiency particulate air (HEPA) filters. The HEPA designation requires that a filter capture 99.97% of particles $\geq 0.3\mu\text{m}$ in size in that pass through it. Knowledge of HEPA filter functionality and prior Centers for Disease Control and Prevention (CDC) guidance for SARS-CoV-1 suggest the theoretical efficacy of HEPA filters for removing airborne SARS-CoV-2 [5]. To arrange the HEPA partitions properly, we evaluated the efficacy of placement by using CO_2 generated from dry ice. Partitions with filters were placed on both sides of the endoscopy unit (▶ Fig. 1). The partition placed near the patient's back draws in air flowing over the patient, whereas the partition placed on the patient's ventral side draws in air from the adjacent endoscopic unit and its output is filtered air. By adjusting the position of the partition and the operator, airflow can be directed toward the patient's back (▶ Fig. 2 and ▶ Video 1). Combination devices with mechanical protection like the C-Cube [4] and a clean partition may be one countermeasure for ensuring the removal of aerosols containing SARS-CoV-2.



▶ Fig. 1 Portable partitions with high-efficiency particulate air (HEPA) filters were placed in the endoscopy unit.



▶ Fig. 2 The efficacy of portable partitions. CO_2 gas was evaluated by pouring water on dry ice in the tub. Airflow can be directed toward the patient's back by using the portable partitions.

VIDEO



▶ **Video 1** The efficacy of portable partitions. By adjusting the position of the partition and the operator, airflow can be directed toward the patient's back. During the recording of this video, no air insufflation from the endoscope was used.

Competing interests

The authors declare that they have no conflict of interest.

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