# Closed-suction System for Intubated COVID-19 Patients with the Use of an Ultrasound Probe Cover

# To the Editor:

ndotracheal suctioning is an important component of tracheobronchial hygiene therapy in mechanically ventilated patients. In the perioperative settings, the aspiration of pulmonary secretions from a patient with an artificial airway is carried out with a suction catheter using an open system.<sup>2</sup> Suctioning an intubated patient with coronavirus disease 2019 (COVID-19) is an aerosol-generating procedure and is therefore at high risk of spreading infection.<sup>2,3</sup> Although the clinicians performing the suctioning of tracheal secretions are equipped with level III protection; a closed-suction system is desirable and likely adds extra protection.<sup>2</sup> However, a closed system for tracheal suction is often not provided in an operating room and its availability is extremely limited in the pandemic era. 4Therefore, we created a closed-suction system functionally comparable with that routinely used in the critical care unit (fig. 1A). Figure 1B illustrates its work principle. Readers are encouraged to watch the Supplemental Digital Content, video 1 (http://links.lww.com/ALN/C419) for a more comprehensive understanding of the closed suctioning system. We also tested it with smoke and found that the system works in the way expected (Supplemental Digital Content, video 2, http:// links.lww.com/ALN/C418). The system can be used multiple times for a given patient and disposed of as a contaminated device at the end of use. We have used this suctioning system

in 12 patients. It functioned well without any safety issues. This set up is not a U. S. Food and Drug Administration (European Union agent)—approved device, but it can be used as an alternative if a closed-suction system is unavailable for the care team dealing with COVID-19 patients.

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# **Competing Interests**

The authors declare no competing interests.

Maria Vargas, M.D., Giuseppe Servillo, M.D. University of Naples "Federico II," via Pansini, Naples, Italy. vargas.maria82@gmail.com

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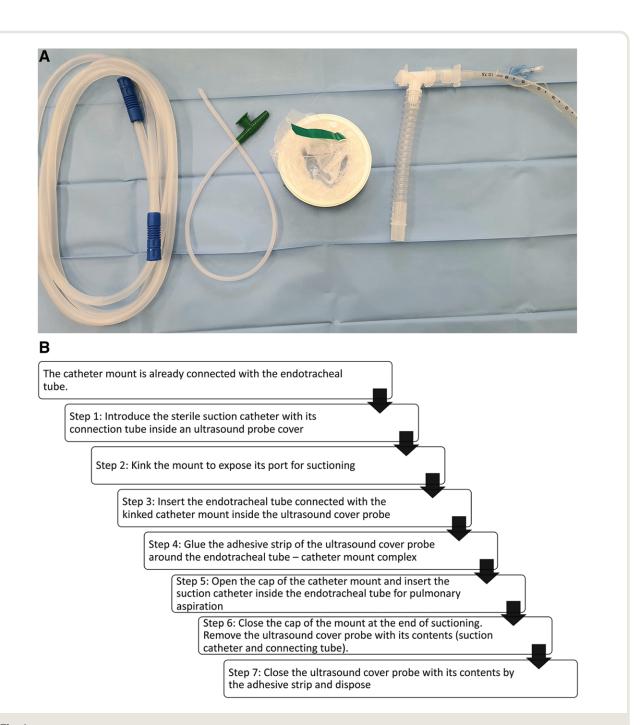
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**Fig. 1.** (*A*) Devices used to build a closed-suction system for intubated patients. (*B*) Step-step explanation to build a closed-suction system with an ultrasound probe cover.