

Simulation-based Training of Pediatric Intensive Care Unit Teams in Endotracheal Intubation of Patients with Suspected or Confirmed COVID-19: Response to a Letter to the Editor

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We thank Daly Guris et al for their additional commentary on our paper, “Simulation-Based Training of Pediatric Intensive Care Unit Teams in Endotracheal Intubation of Patients with Suspected or Confirmed COVID-19.”¹ Indeed, simulation has proven to be a valuable tool for our staff to rapidly be trained and gain confidence in performing a modified workflow for the safe endotracheal intubation of critically ill children with COVID-19. Our experience is not singular, as medical teams and organizations around the world, including the authors of the letter, have harnessed simulation to deploy an agile response to the pandemic.²

We agree that aside from training our staff, a series of test simulations before commencing structured simulation teaching sessions have allowed us to test and refine our modified COVID-19 intubation guidelines within a very short period of time—an advantage given the urgency of quick implementation. The in

situ nature of these test simulations using real equipment with participation by actual pediatric intensive care unit (PICU) team members (attending physicians, nurses, and respiratory therapists) enhanced our ability to immediately identify and address practical issues with the modified intubation workflow.

We anticipated that team communication during intubation will be more difficult than usual with the additional challenges of speaking through personal protective equipment, limited personnel inside the patient room, and the requirement for closed negative-pressure rooms. One of the advantages of simulating the modified intubation workflow was the opportunity to choreograph the procedure to an extent, so that team members will be familiar with each other's roles (and even their expected physical locations) and can anticipate the sequence of tasks to be performed, in effect minimizing communication needed during the procedure itself. Performing the modified procedure in real time also allowed PICU team members to determine ideal speech volumes with personal protective equipment and learn how to effectively use non-verbal signals (eye contact and hand gestures). Technological solutions were also tested, such as using existing in-hospital mobile voice-over-IP calling so that staff inside patient rooms can communicate with personnel outside.

In addition to tangible improvements in performance of endotracheal intubation, the PICU staff's reported confidence in their intubation skills, knowledge of appropriate infection control strategies, and ability to communicate with other PICU team members soared after the simulation sessions. The authors of the letter are correct in emphasizing how important this boost in staff confidence was in the early and uncertain days of the pandemic. In performing these simulations together, we were not only team-training, we were also team-building—an unspoken but powerful statement that together, our PICU team will persevere.³

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A year later, acute respiratory failure due to COVID-19 has been proven to be less significant in children compared to adults. Although we have fortunately been called upon infrequently to implement our modified intubation guidelines, simulation training has nevertheless provided the groundwork for our team to approach these patients safely and effectively. Our team's success in rapidly and effectively modifying our clinical practice using simulation has been a valuable experience. We are confident that simulation-based methods of team training can be adapted for other clinical competencies, and will contribute toward high quality and sustained team performance.

DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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