

Checklists Continue to Prove Their Worth: A Donning and Doffing Checklist Prevents SARS-CoV-2 Transmission

To the Editor:

We were not surprised to see that an intubation checklist, as described by Papali and colleagues,¹ can reduce time for intubation and improve communication between staff, particularly when intubating patients with acute respiratory failure from COVID-19. We applaud the efforts of this group in coming together quickly as an interprofessional team to anticipate the challenges posed by COVID-19 intubations, to agree on a solution, and to communicate that strategy to frontline workers.

We wish to share a similar experience at our institution where a multidisciplinary team of anesthesiologists, intensivists, and infectious disease experts together collaborated to develop an enhanced personal protective equipment (PPE) protocol for aerosol-generating procedures and an accompanying donning and doffing checklist (see the supplementary materials at <http://www.rcjournal.com>) prior to the first surge of COVID-19 in the spring of 2020. Enhanced PPE was used for endotracheal intubation and percutaneous tracheostomy in patients with COVID-19.

A meta-analysis during the SARS-CoV-1 outbreak indicated that health care workers were significantly more likely to contract the disease while performing aerosol-generating procedures.² It is presumed that, similar to SARS-CoV-1, health care workers are at higher risk of contracting SARS-CoV-2 when performing aerosol-generating procedures. Yet the Centers for Disease Control and Prevention (CDC) does not recommend the use of any additional PPE during aerosol-generating procedures. As a result, some professional societies recommend adherence to institutional PPE protocols rather than CDC recommendations.³

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Fig. 1. Items included in the enhanced personal protective equipment protocol for aerosol-generating procedures.

The items that we chose for our institutional enhanced PPE protocol for laryngoscopists during aerosol-generating procedures included inner gloves, an impervious gown with thumbholes, outer gloves with extended wrist cuffs, an N-95 respirator, an impervious hood, and a face shield (Fig. 1). Other members of the intubation team did not include the impervious hood in their PPE because they were able to physically distance themselves from the patient to a greater degree than the laryngoscopist. Because doffing in particular poses great risk of exposure if done improperly,^{4,5} we reasoned that the more complex the process became, the higher the likelihood of disease transmission to the health care worker. For that reason, we avoided unnecessarily excessive PPE that,

although may have helped protect the provider during the procedure, may have been difficult to properly doff, such as shoe covers or full-body coverall suits.

Education and practice prior to clinical duties are paramount to successful implementation. Members of our institution's intubation and tracheostomy teams were invited to attend a donning and doffing PPE session in the simulation center where they gained familiarity with the materials and the checklist. They were also given access to a video on PPE for aerosolizing procedures that was produced by the multimedia lab of the Department of Anesthesiology. In the clinical environment, an observer with the donning/doffing checklist aided frontline clinicians at every procedure. We felt that

Table 1. Summary of Self-Reported COVID-19 RT-PCR Assay, Rapid Antigen Test, and Antibody Test Results.

Survey Question	Responses
Did you receive a COVID-19 RT-PCR assay or rapid antigen test?	57
Yes	21 (36.8)
No	36 (63.2)
How many RT-PCR assays or rapid antigen tests were positive?	21
0 (Zero)	21 (100)
Did you receive a COVID-19 antibody test?	57
Yes	25 (43.8)
No	32 (56.2)
What was the result of the COVID-19 antibody test?	25
Positive	0 (0)
Negative	25 (100)

Data are presented as *n* (%).

adherence to the enhanced PPE protocol and procedural checklist would improve with practice, observation, and a cognitive aid.^{6,7}

We assessed the effectiveness of our institution's enhanced PPE protocol and checklist for aerosol-generating procedures by examining self-reported data from members of the intubation and tracheostomy teams. We determined the number of team members who had a positive SARS-CoV-2 test during the first COVID-19 surge, including reverse-transcription polymerase chain reaction (RT-PCR) assay, rapid antigen test, or serologic antibody test. We are proud to report zero cases of SARS-CoV-2 transmission to anesthesiologists, surgeons, resource nurses, and respiratory therapists who performed 231 intubations and 22 tracheostomies during the first surge of the pandemic (Table 1).

We are encouraged by all of the positive experiences reported from across the

globe, especially when individuals join together in an interprofessional fashion to battle COVID-19. The checklist is a simple yet powerful tool that continues to prove its worth, especially in risky and stressful situations.

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