

Airway management team for patients with COVID-19: A new role for emergency medicine pharmacists

The pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has brought significant challenges to all healthcare providers in the United States. Hospital pharmacy departments are being forced to swiftly implement new working conditions that impact frontline clinical pharmacists. Some of the strategies being implemented for clinical pharmacist staffing include remote work from home, telepharmacy coverage, cross-training of clinical pharmacists to cover new patient care units, and pharmacist reassignment to other pharmacies across the institution. As the pandemic continues—and will likely continue for the near future—clinical pharmacists must do their best to adapt to the rapid and daily disruptions in pharmacy practice.

Emergency medicine pharmacists (EMPs) take pride in their ability to adapt to constantly changing situations while caring for critically ill patients in the emergency department (ED) setting. The ability to adapt has taken on a new meaning during the coronavirus disease 2019 (COVID-19) pandemic. While EDs in some cities (eg, New York City, Detroit) have been overwhelmed with critically ill patients with COVID-19, other EDs are experiencing low census, especially of critically ill patients. While low ED census may be a welcome relief for most EDs, which have been struggling with overcrowding, it also allows for EMPs to pursue new opportunities to be involved in caring for critically ill patients in other areas of the hospital. With ample evidence supporting clinical pharmacist participation on cardiopulmonary resuscitation (ie, code blue) and rapid response teams (RRTs) to optimize medication selection and dosing while improving patient outcomes, participating in a multidisciplinary team responsible for airway management of patients with COVID-19 could serve as a new avenue to improve patient outcomes.¹⁻³

“COVID-19 airway teams” and “COVID-19 rapid sequence intubation (RSI) teams” are being implemented by

institutions across the United States to decrease healthcare worker exposure to SARS-CoV-2 and to conserve personal protective equipment (PPE). A COVID-19 airway team is responsible for doing all endotracheal intubations of SARS-CoV-2-positive patients or patients under investigation for suspected COVID-19 throughout the hospital, including intensive care units (ICUs) and the ED. COVID-19 airway teams typically consist of an anesthesiologist or emergency medicine physician, a senior medical resident (at an academic medical center), a registered nurse (RN), and a respiratory therapist (RT). Having an EMP as part of the COVID-19 airway team is logical because EMPs play an integral role during RSIs in the ED setting, serving as experts in medication selection and dosing. On the COVID-19 airway team at University of Iowa Hospitals and Clinics, the role and duties of an EMP can be categorized as follows:

- **Development**—The EMP develops a medication kit that includes induction and neuromuscular blocking agents (NMBAs), sedatives, analgesics, and vasopressors (Table 1).
- **Facilitation**—The EMP facilitates rapid delivery of medications to the bedside by responding to all endotracheal intubation calls with the COVID-19 airway team.
- **Evaluation**—The EMP evaluates the patient’s medical history and vital signs to make drug therapy recommendations, which include appropriate dosing for induction, administration of NMBAs, and postintubation sedation and analgesia.
- **Preparation**—The EMP prepares recommended medications.
- **Support**—The EMP provides recommendations for hemodynamic support before and after RSI and helps with the acquisition of needed medications from a satellite pharmacy if they are not stocked in the ED medication kit.

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Table 1. COVID-19 Airway Team Medication Kit Contents

Item	Quantity
Medications	
Ketamine 10 mg/mL	1 x 20-mL vial
Etomidate 2 mg/mL	2 x 10-mL vial
Fentanyl 50 µg/mL	2 x 2-mL vial
Midazolam 1 mg/mL	4 x 2-mL vial
Propofol 500 mg/50 mL	1 x 50-mL vial
Propofol 200 mg/20 mL	1 x 20-mL vial
Phenylephrine 100 µg/mL	2 x 10-mL syringe
Rocuronium 10 mg/mL	3 x 5-mL vial
Succinylcholine 20 mg/mL ^a	1 x 10-mL vial
Norepinephrine 1 mg/mL	1 x 4-mL vial
Epinephrine 1 mg/mL	5 x 1-mL vial
Sugammadex 100 mg/mL	4 x 5-mL vial
Atropine 0.1 mg/mL	1 x 10-mL syringe
Glycopyrrolate 0.2 mg/mL	2 x 1-mL vial
Supplies	
Medication labels	1 roll
20-mL syringe	2
10-mL syringe	10
3-mL syringe	5
18-gauge needle	10
Filter needle	10
Alcohol swab	10
Gloves (medium)	10 pairs
0.9% sodium chloride flush	10 x 5 mL
0.9% sodium chloride bags	1 x 250-mL bag 1 x 100-mL bag

^aSuccinylcholine vial can be kept for 14 days at room temperature.

- Documentation—The EMP documents all interventions and recommendations provided during and immediately after RSI.

While having an EMP as part of the multidisciplinary COVID-19 airway team is a concept supported by most healthcare professionals, rapid implementation during the middle of an ongoing pandemic does not occur without challenges. The first challenge is providing 24/7 coverage. Most institutions (including ours) do not have the capability to provide 24/7 ED pharmacist coverage. To expand coverage quickly and efficiently, we had one of our critical care pharmacists and a postgraduate year 2 resident in emer-

gency medicine pharmacy staff the open shifts. The second challenge is getting buy-in from all parties that may be impacted by EMP deployment outside the ED. It is important to have early and continual communication with the ED medical director and nursing leadership during protocol development so they are aware of the potential for the EMP to be temporarily reassigned outside the ED to help the COVID-19 airway team.

Participating as a team member on a COVID-19 airway team demonstrates the ability of EMPs to adapt to challenging situations and seek new opportunities to improve patient care during a pandemic. Future studies should evaluate the impact of EMP participation on a COVID-19 airway team on patient outcomes.

1. Feih J, Peppard WJ, Katz M. Pharmacist involvement on a rapid response team. *Am J Health-Syst Pharm.* 2017;74(suppl 1): S10-S16.
2. Draper HM, Eppert JA. Association of pharmacist presence on compliance with advanced cardiac life support guidelines during in-hospital cardiac arrest. *Ann Pharmacother.* 2008;42(4):469-474.
3. Hashemipour Z, Delgado G Jr, Dehoorne-Smith M, Edwin SB. Pharmacist integration into cardiac arrest response teams. *Am J Health Syst Pharm.* 2013;70(8):662,664,666-667.

Brett A. Faine, PharmD, MS

Department of Pharmaceutical Care
University of Iowa Hospitals and Clinics
Iowa City, IA
Department of Emergency Medicine
Iowa City, IA
University of Iowa Carver College of Medicine
faine@uiowa.edu

Elisabeth Carroll, PharmD

Department of Pharmaceutical Care
University of Iowa Hospitals and Clinics
Iowa City, IA

Jacob Declene, PharmD

Department of Pharmaceutical Care
University of Iowa Hospitals and Clinics
Iowa City, IA

Anne Zepeski, PharmD

Department of Pharmaceutical Care
University of Iowa Hospitals and Clinics
Iowa City, IA
Department of Emergency Medicine
University of Iowa Carver College of Medicine
Iowa City, IA

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